Troubleshooting Manual

Satio - U1

ABOUT

General information

The purpose of this document is to provide enhanced technical information for Sony Ericsson repair technicians in order to assist during service, repair and troubleshooting operations on Sony Ericsson mobile phones. It should be used as a complement to other repair instructions and tools as notified by the local Sony Ericsson representative.

To search for components throughout the entire document use the “search” function in Adobe Acrobat Reader 7.0 (or later version) and enter the component name or other word. Use zoom to enlarge.

For easier navigation of the document you can use the bookmarks that appear in the Bookmarks tab on the left side of the Adobe Acrobat Reader window. Each bookmark jumps to a page in the document.

Disclaimer

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Note

When disassembling and reassembling the phone the instructions and processes described in the Mechanical Working Instructions, the Generic Repair Manual and the Repair Center Handbook must be followed.

Revision History

Rev.	Date	Changes / Comments
1	10/10/2009	Initital revision.

Table of Contents

ABOUT 2
General Information 2
Table of Contents 2
Equipment List 3
TROUBLESHOOTING 5
Dead Phone Problems 5
Display Problems 7
Display Illumination Problems 7
Proximity Sensor Problems 8
Light Sensor Problems 8
On/Off Key Problems 9
Lock Key Problems 9
Volume Up and Down Key Problems 10
Play/View Key Problems 10
Mode Select Key Problems 11
Key Center, End and Send Problems 11
Key Center, Key End and Key Send Illumination Problems 12
Red and Green LED Problems 12
Tally LED Problems 13
Trickle Charge LED Problems 13
Camera Cover Blue LED Problems 14
Camera Key Blue LED Problems 14
Torch (White) LED Problems 15
Xenon Flash Problems 15
Camera Cover Detect Problems 16
Auto Focus and Camera Shutter Problems 16
Main Camera Problems 17
VT Camera Problems 17
Charging Problems 18
USB Charging Problems 18
Data Communication Problems 19
SIM Problems 19
Memory Card Problems 20
Microphone Problems 20
Ear Speaker Problems 21
Loudspeaker Problems 21
Handsfree (PHF) Problems 22
FM Radio Problems 23
WLAN Problems 23
Bluetooth Problems 24
GSM Network Problems 25
WCDMA Network Problems 25
A-GPS Problems 26
Accelerometer Problems 27
Vibrator Problems 27
Alert and Real Time Clock Problems 28
TV Out Problems 28
System Connector Protection Test 29
Backup Capacitor Test 29
Display Filter Test 30
ASIC Revision Test 30
Measurement Points Pictures 31
MEASUREMENT POINTS 42
Primary Side 42
Secondary Side 43
FPC Receiver 44
FPC Side Key 45
Top Schematic & Interface 46
Access Top 47
Access Bluetooth + FM Radio 48
Access GSM_UMTS 49
Access WLAN 50
Access A-GPS 51
Audio Top 52
Audio Digital 53
Audio Analog 54
Baseband Top 55
Baseband System 56
Baseband UARTS_SIM 57
Baseband Memories 58
Baseband Kajsa PoP Interface 59
PDA Top 60
PDA Debug 61
PDA Memories 62
PDA Com 63
PDA Camera 64
PDA LCD_TS 65
PDA System Connector 66
PDA Key Interface 67
PDA OMAP PoP Interface 68
Power Top 69
Power Baseband 70
Power PDA 71
Power Decoupling PDA 72
Power Decoupling 73
FPC Receiver 74
FPC Side Key 75
APPENDIX 76
Troubleshooting Fixture Setup Instructions 76

Satio, U1a, U1i Equipment List

Info: Additional information about the equipment used for TRS can be found in the following location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf or matris.xls – U Model Tab.

Troubleshooting Fixture

Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf Part number: 1230-8339

Note! Additional information about the TRS Fixture Kit can be found in the Trouble Shooting Fixtures Setup Instructions document which is included at the end this TRS Manual.

Dummy Battery

Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf Part number: NTZ 112 533
Note! The resistance between GND and BDATA should be approximately 120 KOhm.

Instruments

Power Supply Channel 1 (VBATT)
Agilent 6632B or similar
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf

Instrument Settings:
Voltage: **3.8 Volt**
Limiter: **2.0 A**

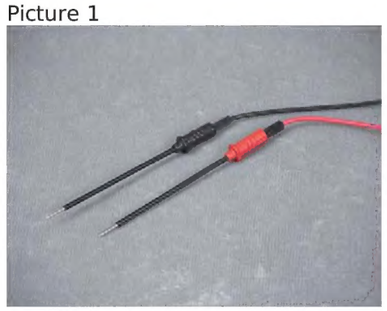
Note! The cable length between the Power Supply Channel 1 VBATT and the dummy battery must **not** exceed 1 m. The cable must have a capacity for at least 16A.

Oscilloscope
Agilent DSO7052A or similar
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf

Digital Multimeter (DMM)
Fluke 83 or similar
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf

Note! The 0, 64 mm Test Probes is recommended by Sony Ericsson when the DMM is in use.
See Picture 1.

Picture 1



Spectrum Analyzer
R&S FSL 9 kHz – 3 GHz or similar
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf

RF probe
HP 85024A or similar
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf

FM Signal Generator
R&S SMC100A or similar
Location: -

PC Package & PC Software

PC Package (Computer)
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf

Urquell Fault Trace SW with project file
Location: CSPN – Repair Instructions – Electrical – **Product:** Satio, U1a, U1i – Trouble Shooting Application (Project File: Satio_U1a_U1i_Project_R1A)
Note! Additional information can be found in the Help menu included in the Fault Trace SW.

Cables

DSU-65/ USB Cable
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf
Part number: RPM 131 12.
See picture 2.

Picture 2

RF Test Cable Flexible
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf
Part number: RPM 119 885
See Picture 3.

Picture 3

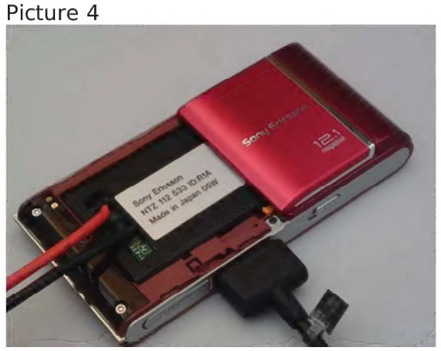
Power Cable RED to Power Supply Channel 1 (VBATT)
Maximum Length: 1 metre
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf

Power Cable BLACK to Power Supply Channel 1 (VBATT)
Maximum Length: 1 metre
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf

Connection Instructions for the Dummy Battery

This is the correct setup when the Dummy Battery is in use.
See Pictures 4 and 5.

Picture 4



Picture 5

Test Cards

Test SIM GSM/ UMTS
One Test SIM GSM/UMTS is needed to perform the Current Consumption Test, see Picture 6.
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf

Note! To buy a Test SIM GSM/UMTS, please contact your supplier of test equipment.

Picture 6

Memory Card
SanDisk microSD™
See picture 7.

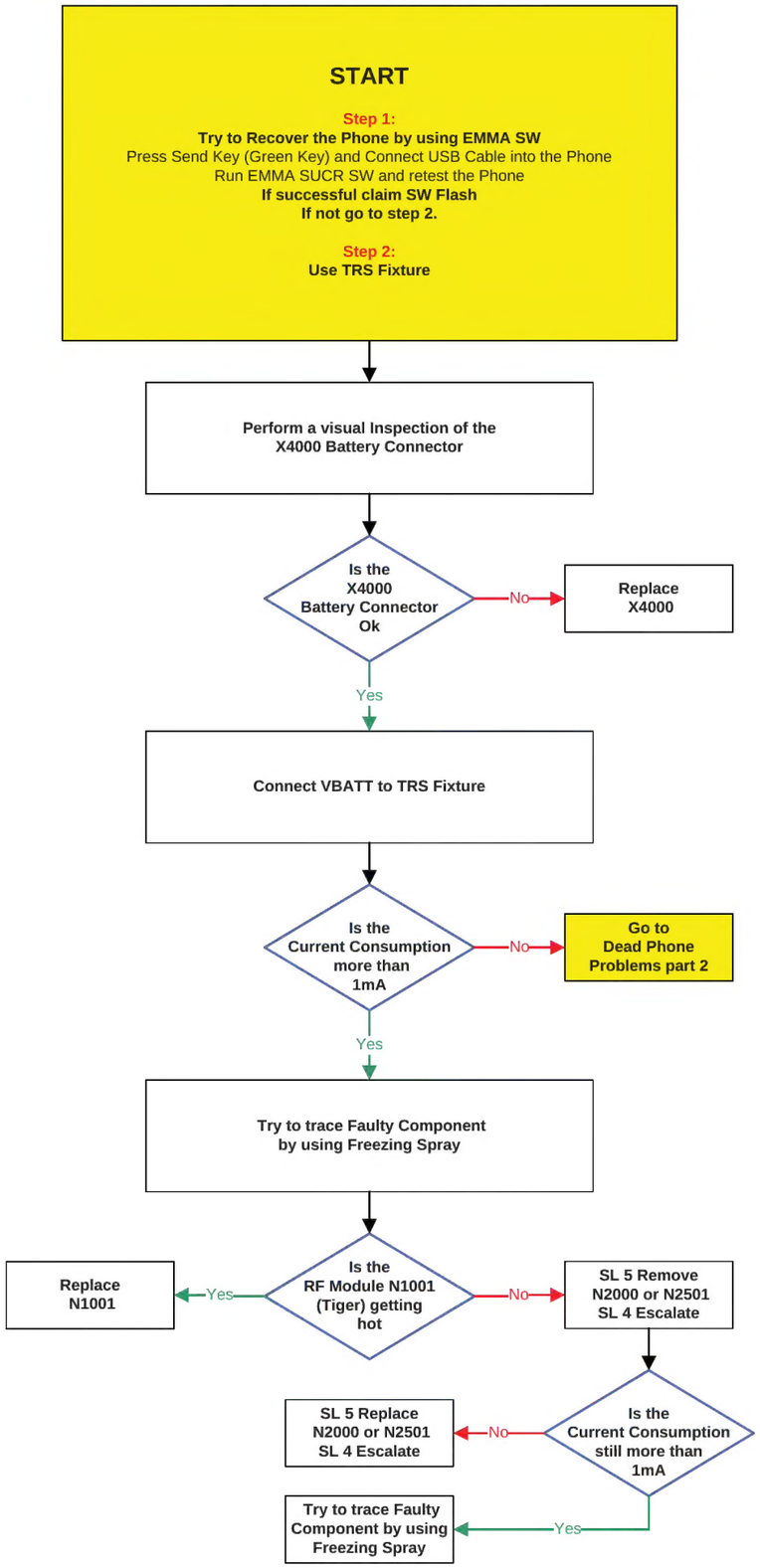
Picture 7

SMK RF Probe

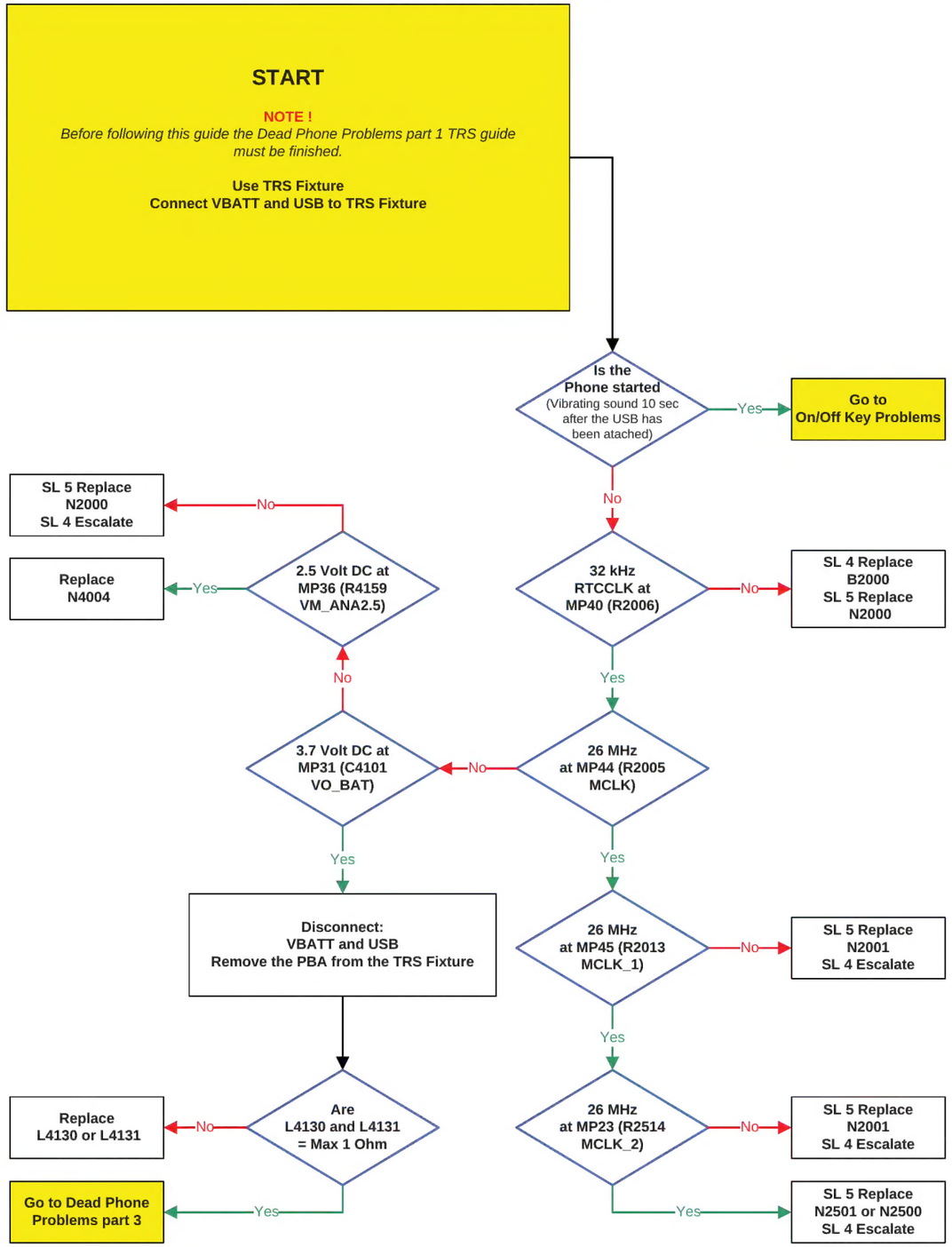
Location: CSPN – Repair Instructions – Mechanical – Tool Catalogue – RepairToolsCatalogue.pdf
Part number: SXA 109 6356
See Picture 8.

Picture 8

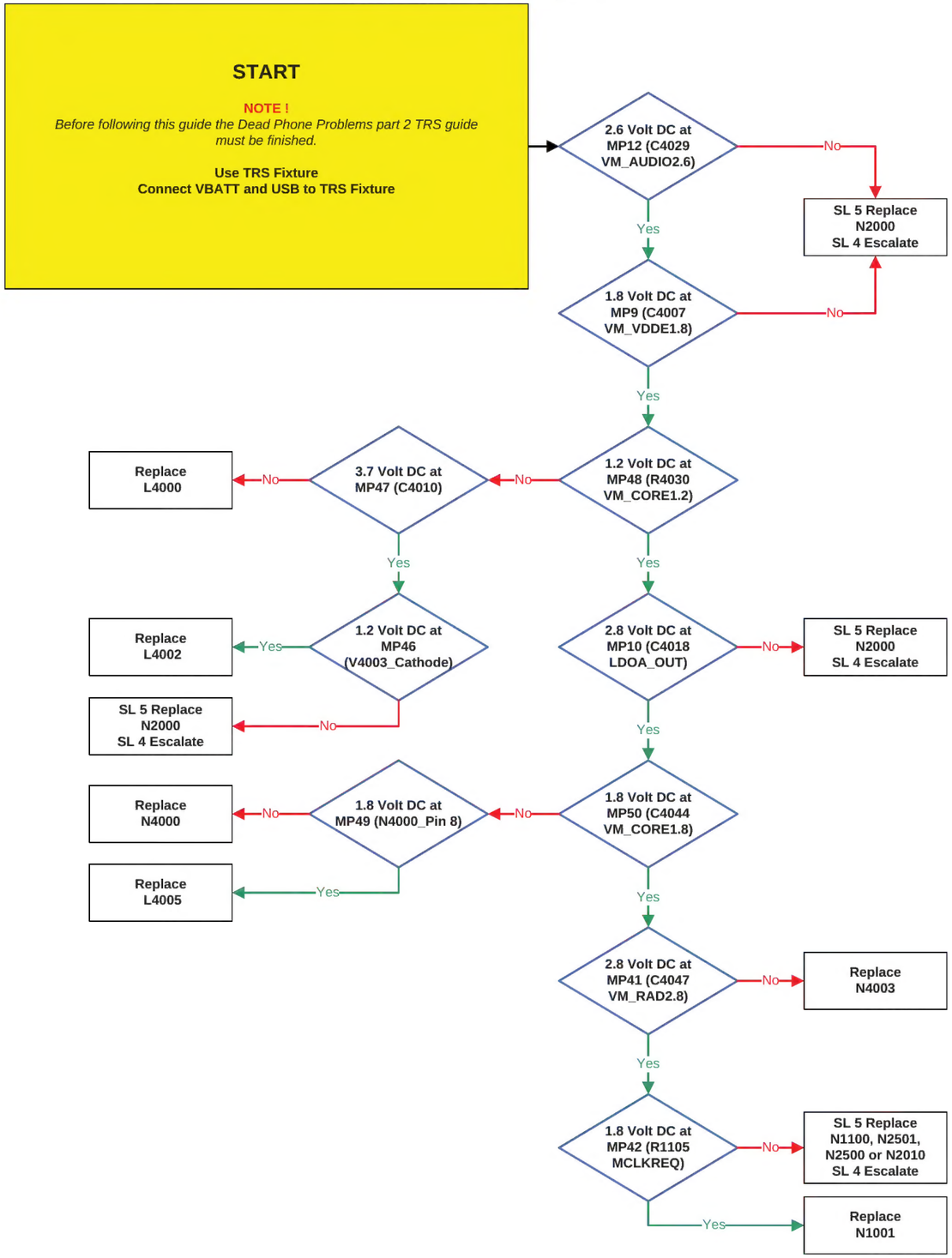
Dead Phone Problems part 1


START
Step 1:
Try to Recover the Phone by using EMMA SW
Press Send Key (Green Key) and Connect USB Cable into the Phone
Run EMMA SUCR SW and retest the Phone
If successful claim SW Flash
If not go to step 2.
Step 2:
Use TRS Fixture
Perform a visual Inspection of the X4000 Battery Connector
Is the X4000 Battery Connector Ok
No
Replace X4000
Yes
Connect VBATT to TRS Fixture
Is the Current Consumption more than 1mA
No
Go to Dead Phone Problems part 2
Yes
Try to trace Faulty Component by using Freezing Spray
Is the RF Module N1001 (Tiger) getting hot
Yes
Replace N1001
No
SL 5 Remove N2000 or N2501 SL 4 Escalate
Is the Current Consumption still more than 1mA
No
SL 5 Replace N2000 or N2501 SL 4 Escalate
Yes
Try to trace Faulty Component by using Freezing Spray

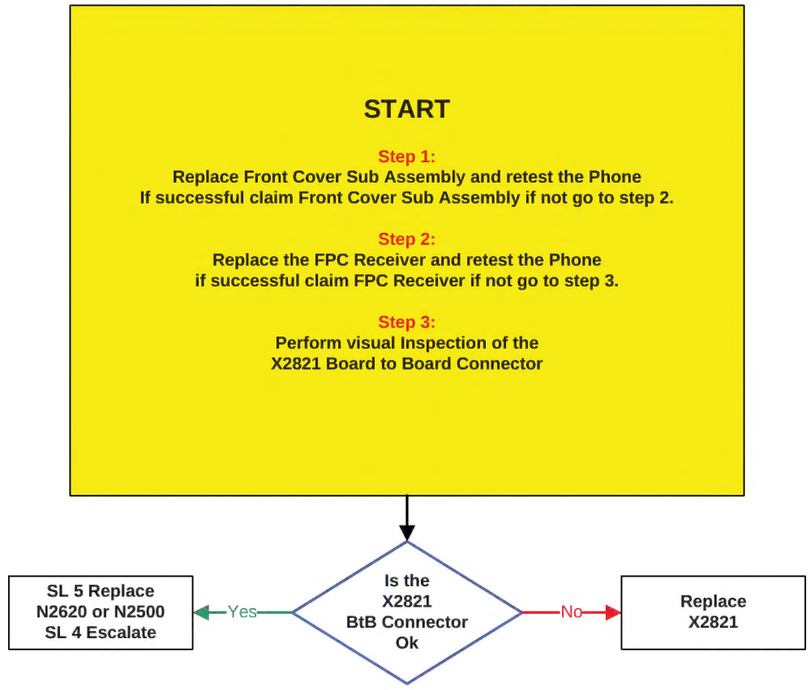
Dead Phone Problems part 2


START
NOTE !
Before following this guide the Dead Phone Problems part 1 TRS guide must be finished.
Use TRS Fixture
Connect VBATT and USB to TRS Fixture
Is the Phone started (Vibrating sound 10 sec after the USB has been atached)
Yes
Go to On/Off Key Problems
No
32 kHz RTCCLK at MP40 (R2006)
No
SL 4 Replace B2000 SL 5 Replace N2000
Yes
26 MHz at MP44 (R2005 MCLK)
No
3.7 Volt DC at MP31 (C4101 VO_BAT)
No
2.5 Volt DC at MP36 (R4159 VM_ANA2.5)
No
SL 5 Replace N2000 SL 4 Escalate
Yes
Replace N4004
Yes
Disconnect: VBATT and USB Remove the PBA from the TRS Fixture
26 MHz at MP45 (R2013 MCLK_1)
No
SL 5 Replace N2001 SL 4 Escalate
Yes
26 MHz at MP23 (R2514 MCLK_2)
No
SL 5 Replace N2001 SL 4 Escalate
Yes
SL 5 Replace N2501 or N2500 SL 4 Escalate
Are L4130 and L4131 = Max 1 Ohm
No
Replace L4130 or L4131
Yes
Go to Dead Phone Problems part 3

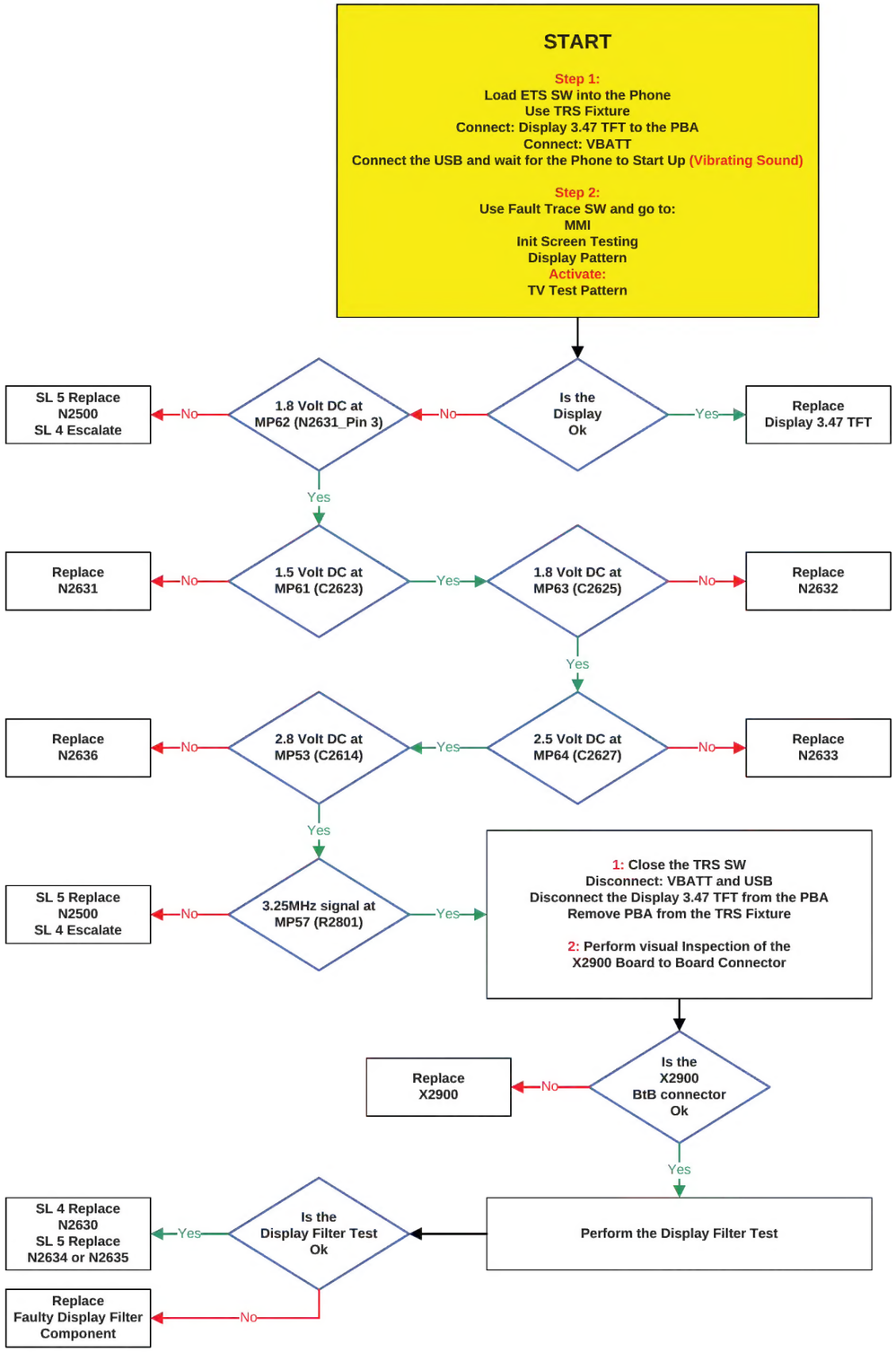
Dead Phone Problems part 3



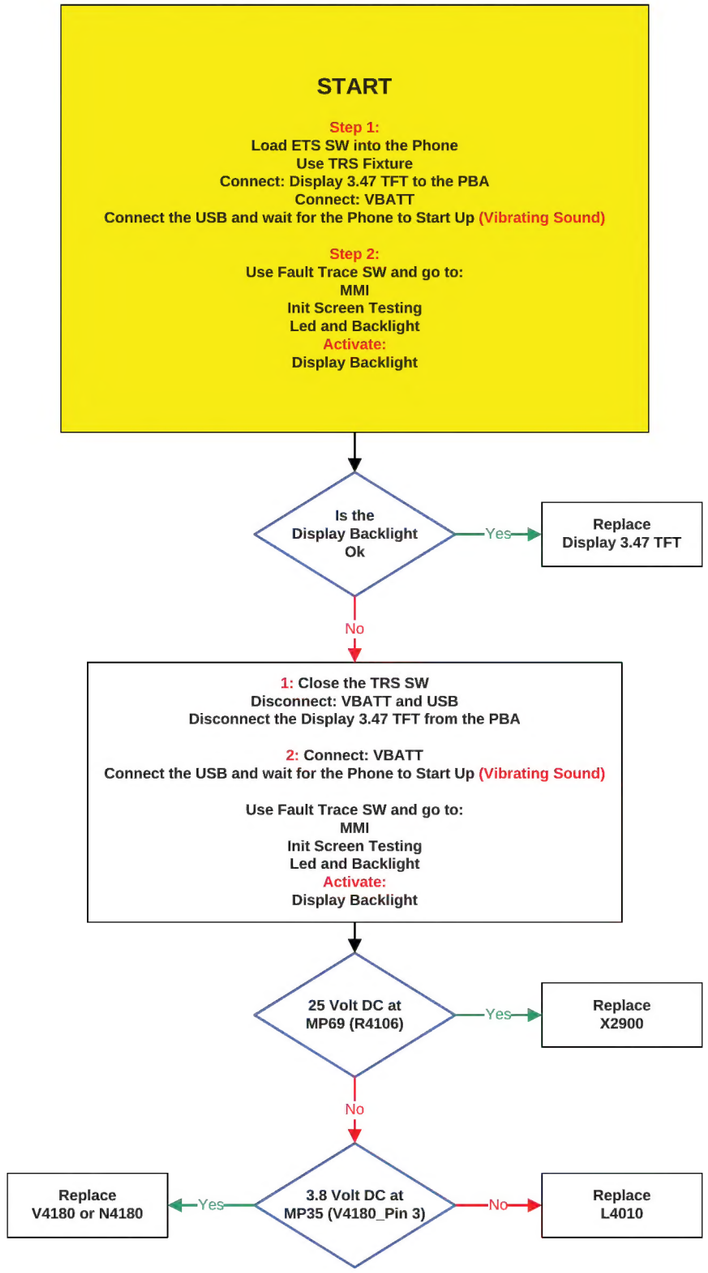
Touch Screen Problems


START
Step 1:
Replace Front Cover Sub Assembly and retest the Phone
If successful claim Front Cover Sub Assembly if not go to step 2.
Step 2:
Replace the FPC Receiver and retest the Phone
if successful claim FPC Receiver if not go to step 3.
Step 3:
Perform visual Inspection of the
X2821 Board to Board Connector
Is the X2821 BtB Connector Ok
Yes
SL 5 Replace N2620 or N2500 SL 4 Escalate
No
Replace X2821

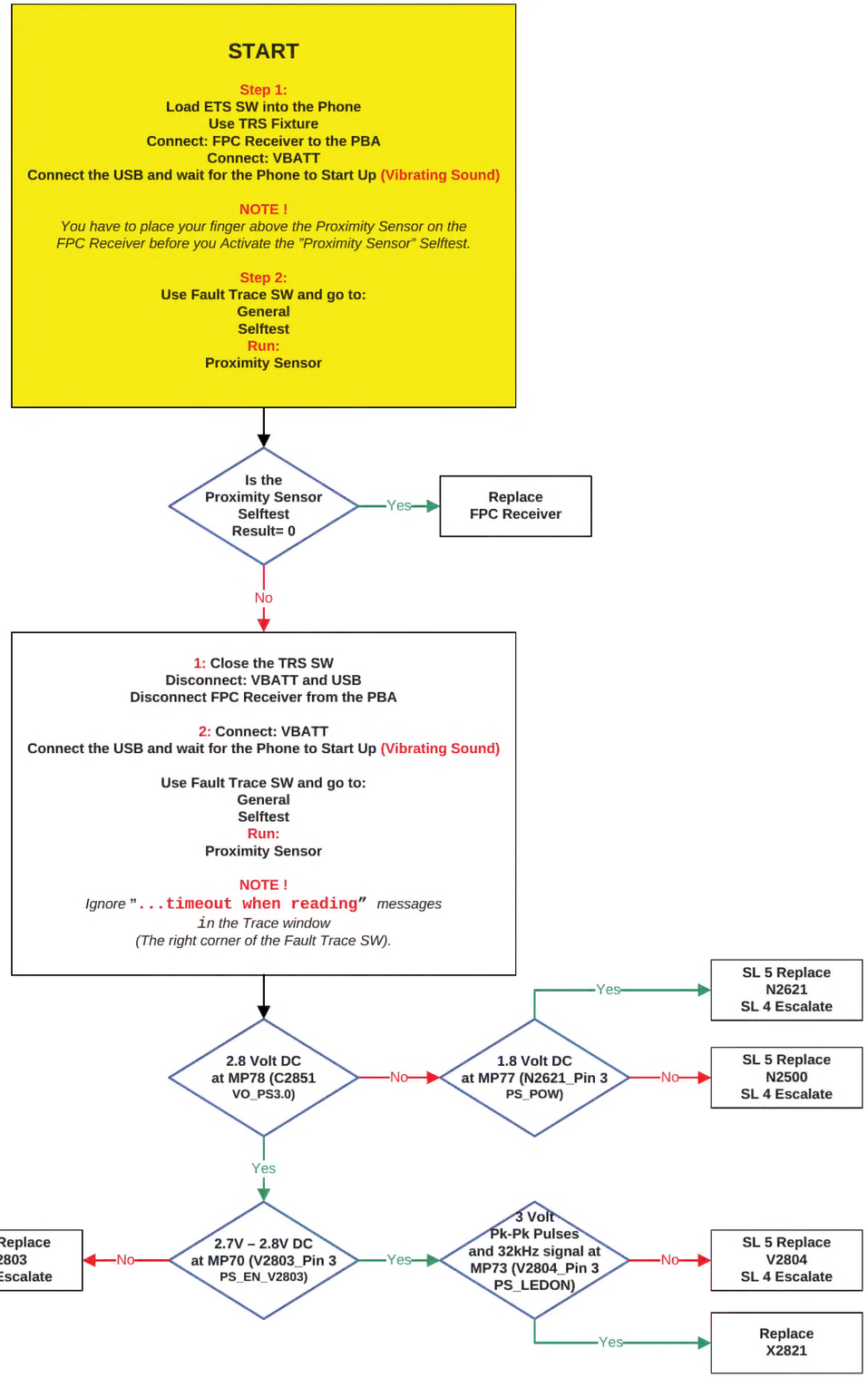
Display Problems



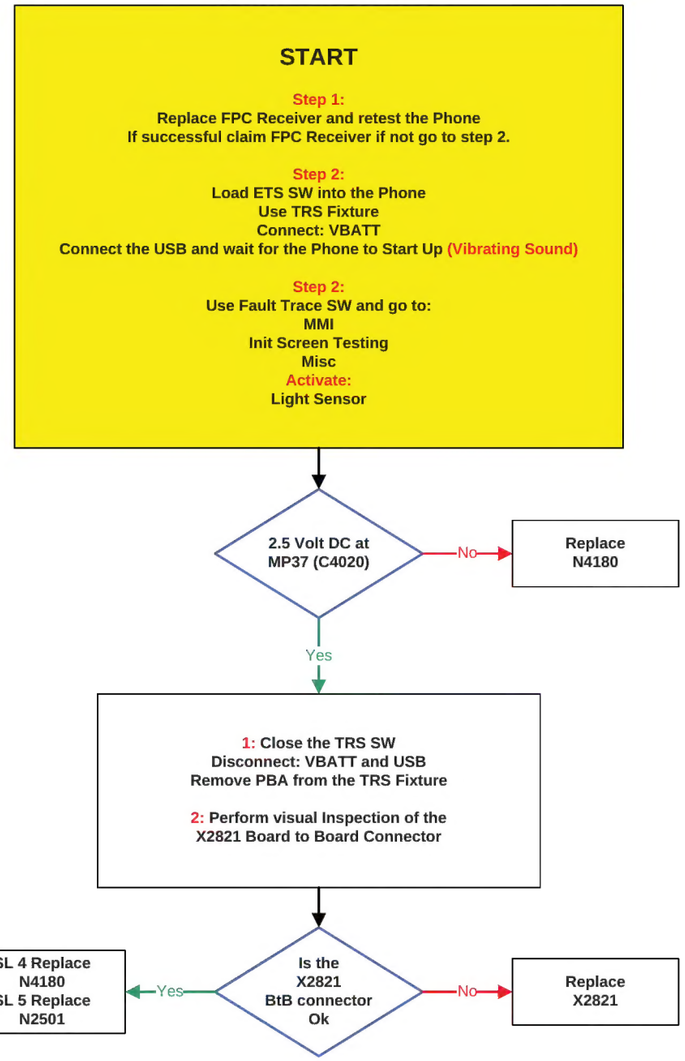
Display illumination Problems



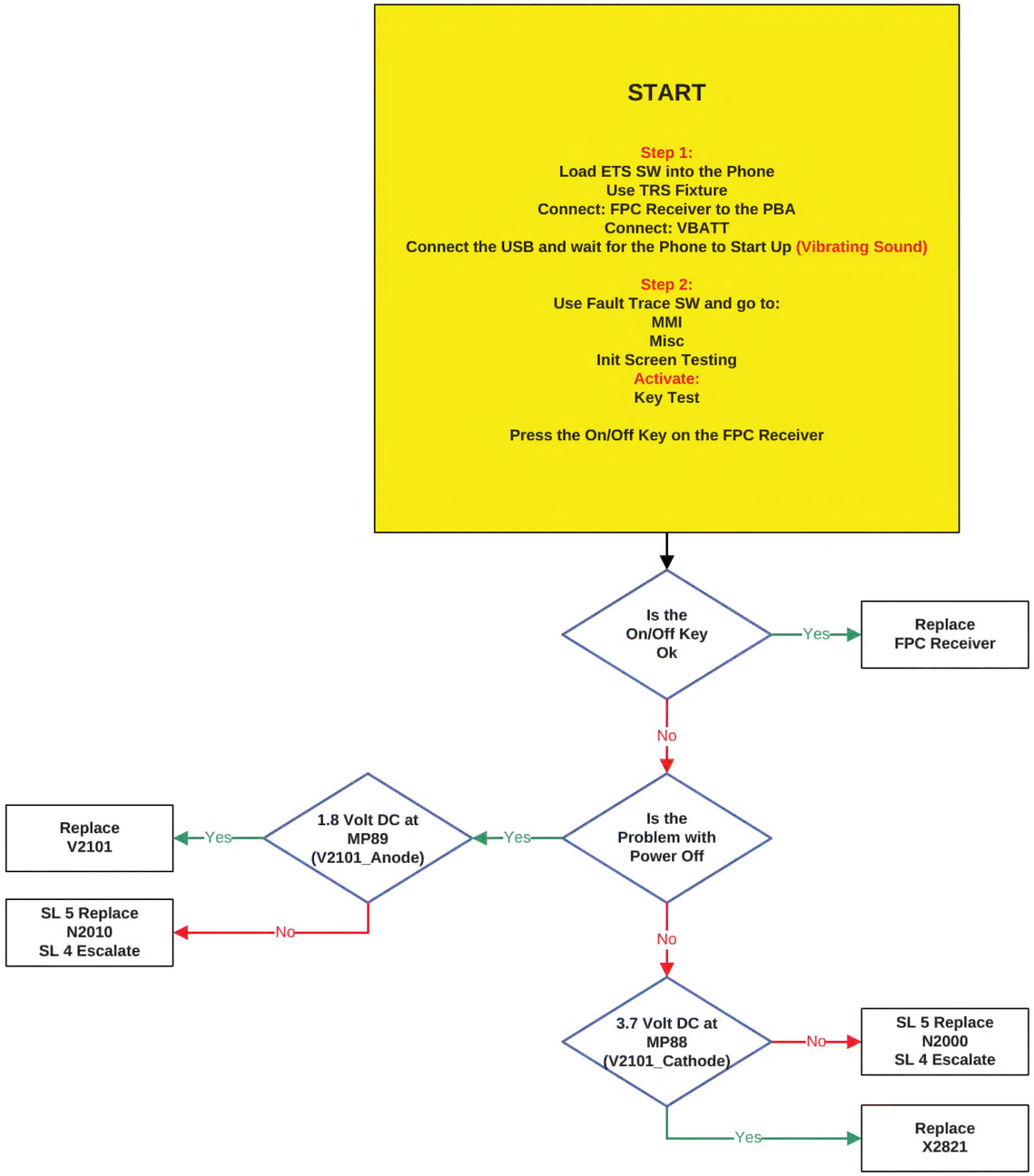
Proximity Sensor Problems


START
Step 1:
Load ETS SW into the Phone
Use TRS Fixture
Connect: FPC Receiver to the PBA
Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
NOTE !
You have to place your finger above the Proximity Sensor on the FPC Receiver before you Activate the "Proximity Sensor" Selftest.
Step 2:
Use Fault Trace SW and go to:
General
Selftest
Run:
Proximity Sensor
Is the Proximity Sensor Selftest Result= 0
Yes
Replace FPC Receiver
No
1: Close the TRS SW
Disconnect: VBATT and USB
Disconnect FPC Receiver from the PBA
2: Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Use Fault Trace SW and go to:
General
Selftest
Run:
Proximity Sensor
NOTE !
Ignore "...timeout when reading" messages in the Trace window
(The right corner of the Fault Trace SW).
2.8 Volt DC at MP78 (C2851 VO_PS3.0)
No
1.8 Volt DC at MP77 (N2621_Pin 3 PS_POW)
Yes
SL 5 Replace N2621 SL 4 Escalate
No
SL 5 Replace N2500 SL 4 Escalate
Yes
2.7V – 2.8V DC at MP70 (V2803_Pin 3 PS_EN_V2803)
No
SL 5 Replace V2803 SL 4 Escalate
Yes
3 Volt Pk-Pk Pulses and 32kHz signal at MP73 (V2804_Pin 3 PS_LEDON)
No
SL 5 Replace V2804 SL 4 Escalate
Yes
Replace X2821

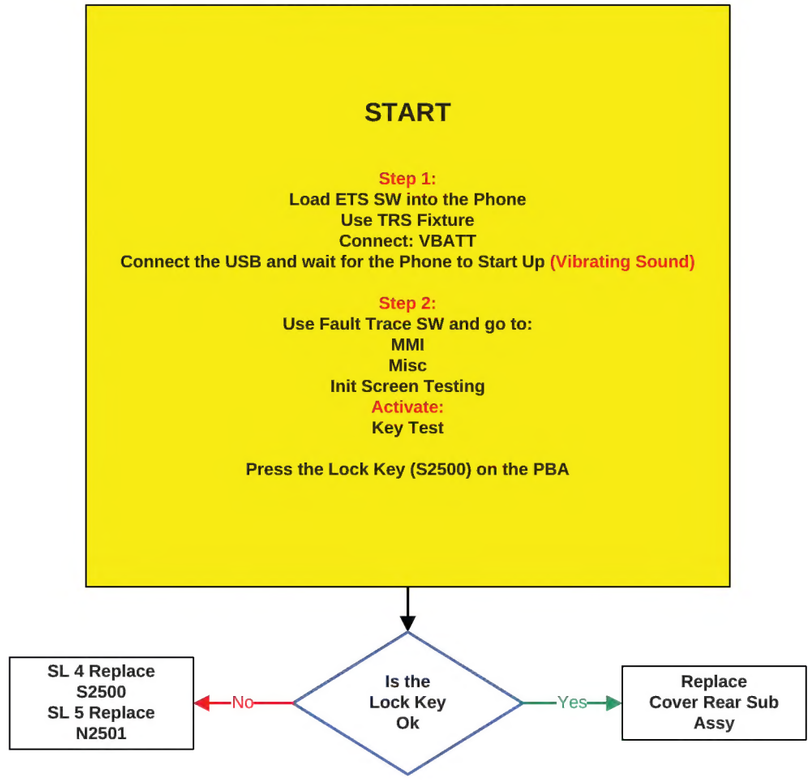
Light Sensor Problems



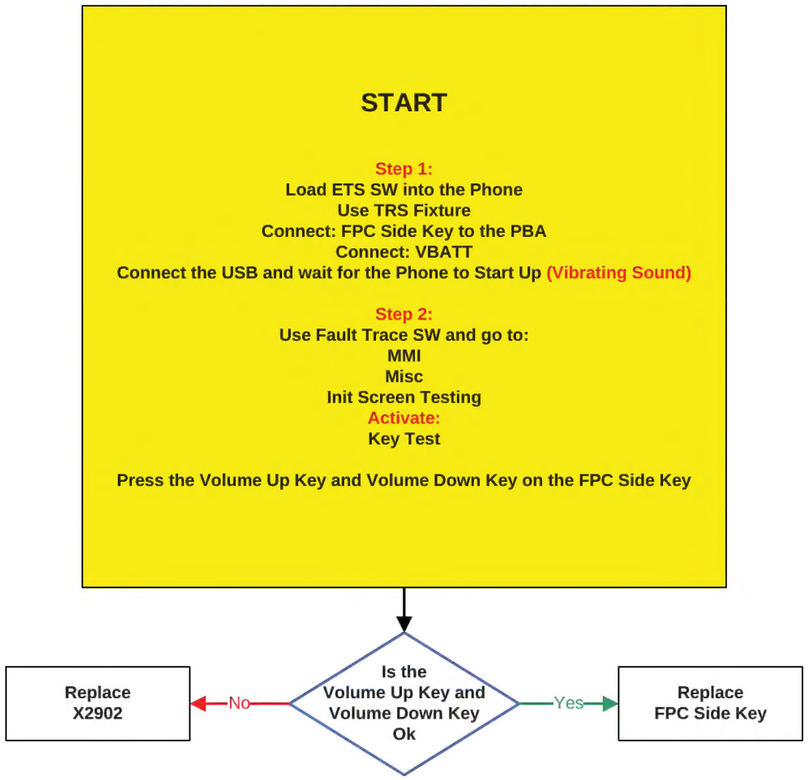
On/Off Key Problems



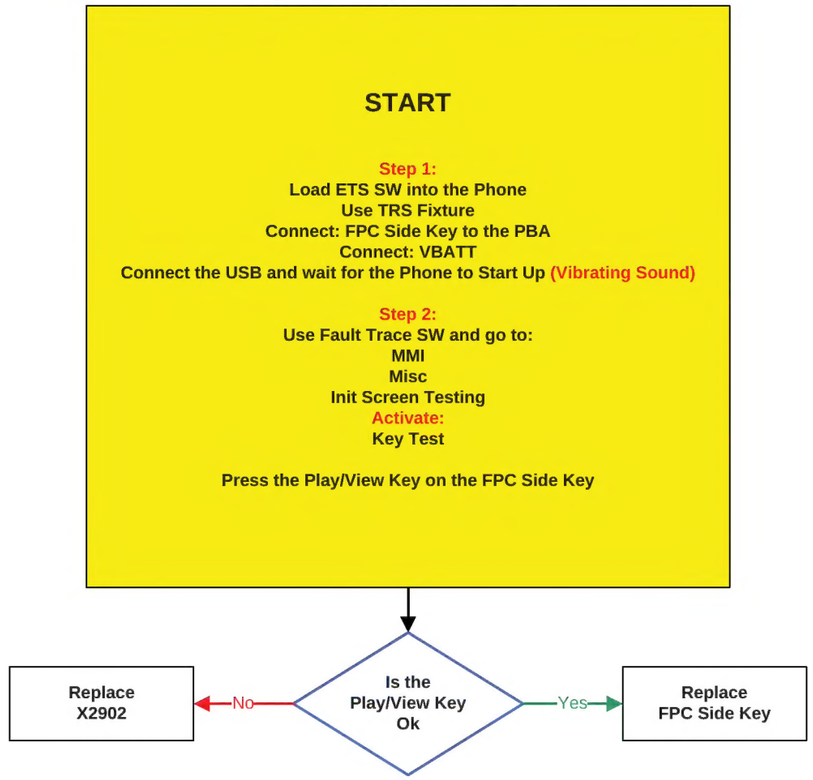
Lock Key Problems



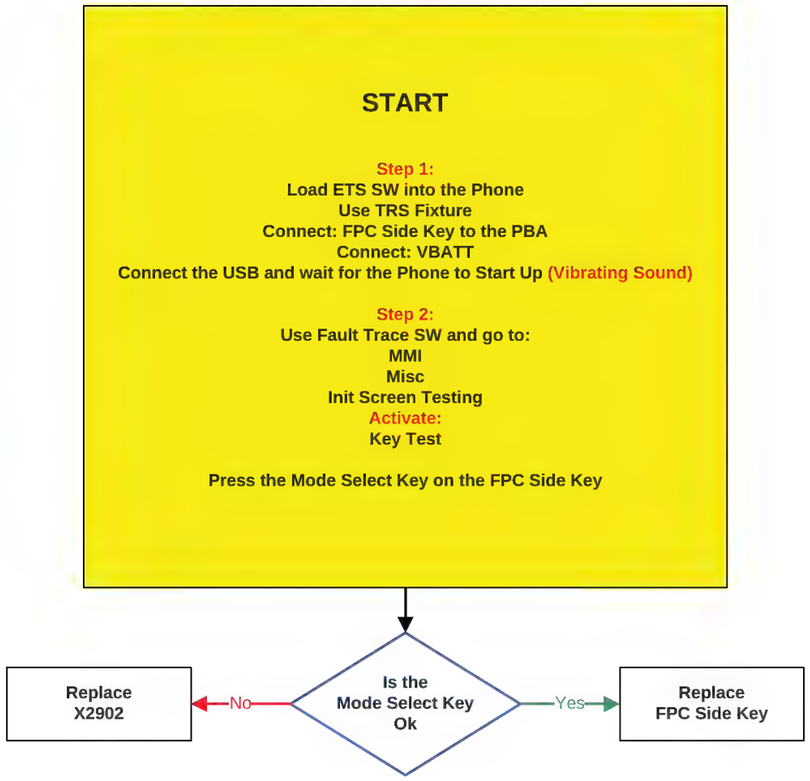
Volume Up Key and Volume Down Key Problems


START
Step 1:
Load ETS SW into the Phone
Use TRS Fixture
Connect: FPC Side Key to the PBA
Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Step 2:
Use Fault Trace SW and go to:
MMI
Misc
Init Screen Testing
Activate:
Key Test
Press the Volume Up Key and Volume Down Key on the FPC Side Key
Is the Volume Up Key and Volume Down Key Ok
No
Replace X2902
Yes
Replace FPC Side Key

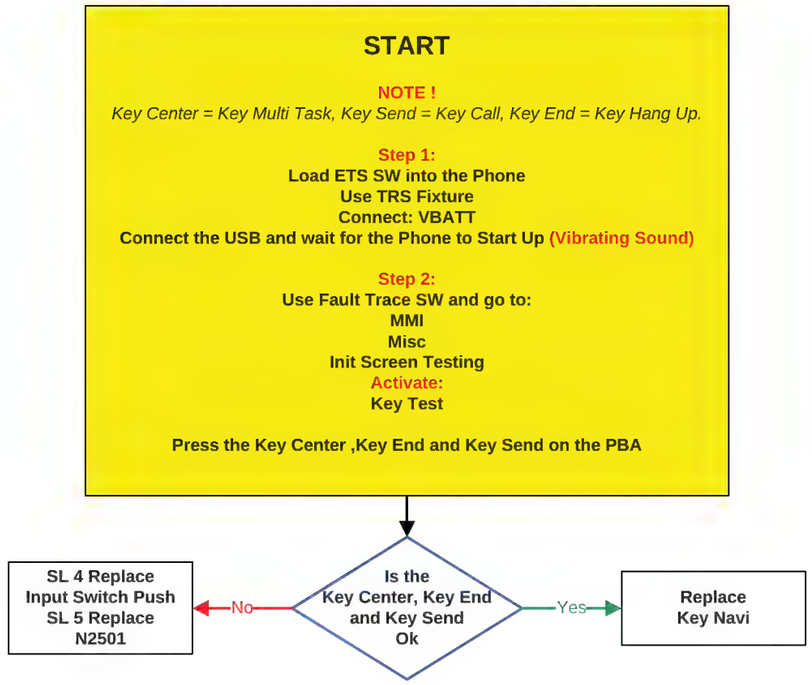
Play/View Key Problems



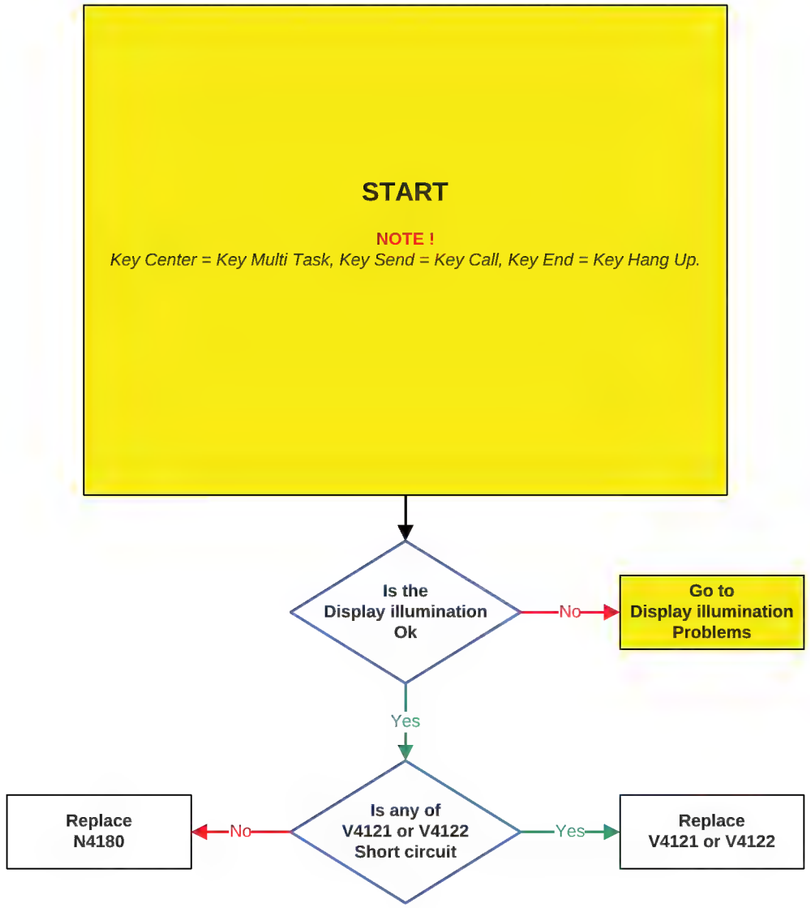
Mode Select Key Problems



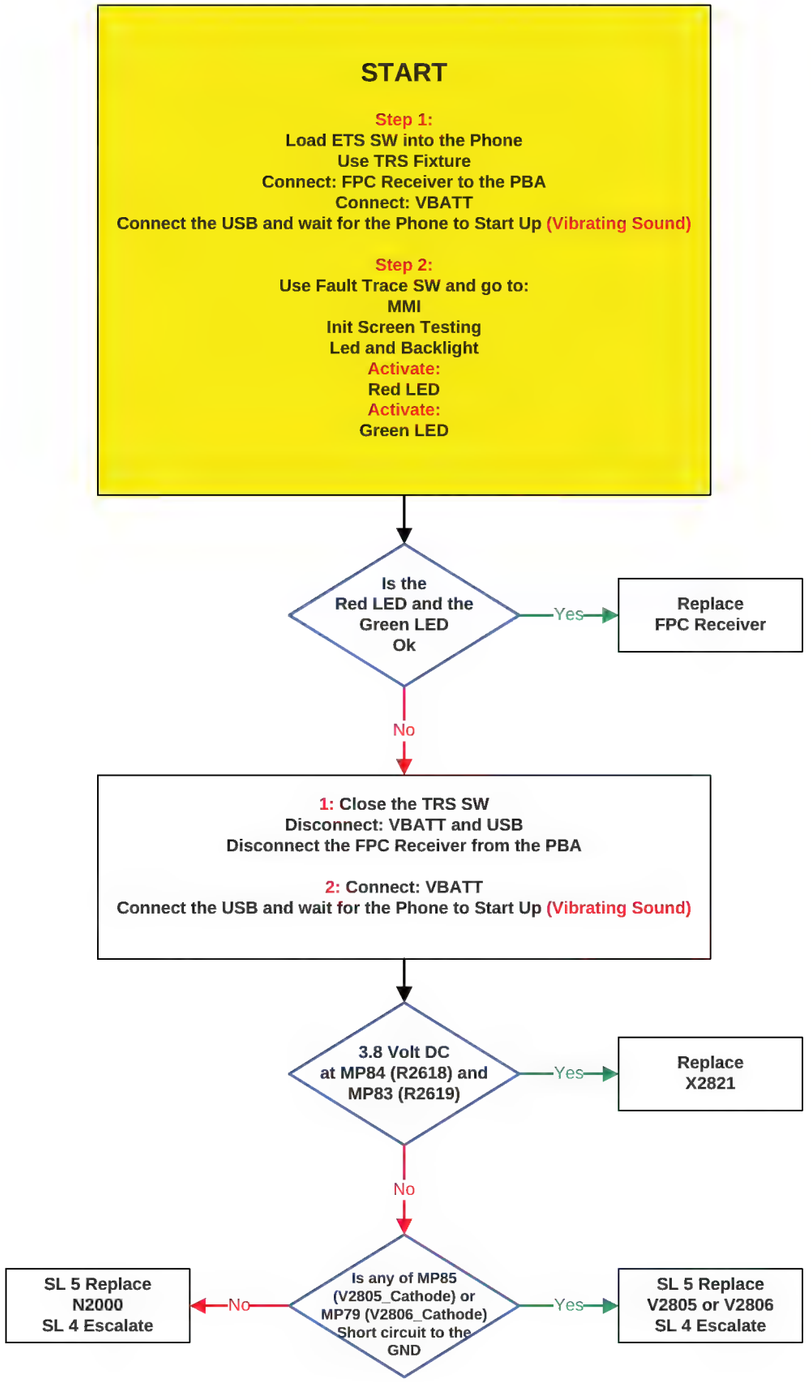
Key Center ,Key End and Key Send Problems


START
NOTE !
Key Center = Key Multi Task, Key Send = Key Call, Key End = Key Hang Up.
Step 1:
Load ETS SW into the Phone
Use TRS Fixture
Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Step 2:
Use Fault Trace SW and go to:
MMI
Misc
Init Screen Testing
Activate:
Key Test
Press the Key Center ,Key End and Key Send on the PBA
Is the Key Center, Key End and Key Send Ok
No
SL 4 Replace Input Switch Push SL 5 Replace N2501
Yes
Replace Key Navi

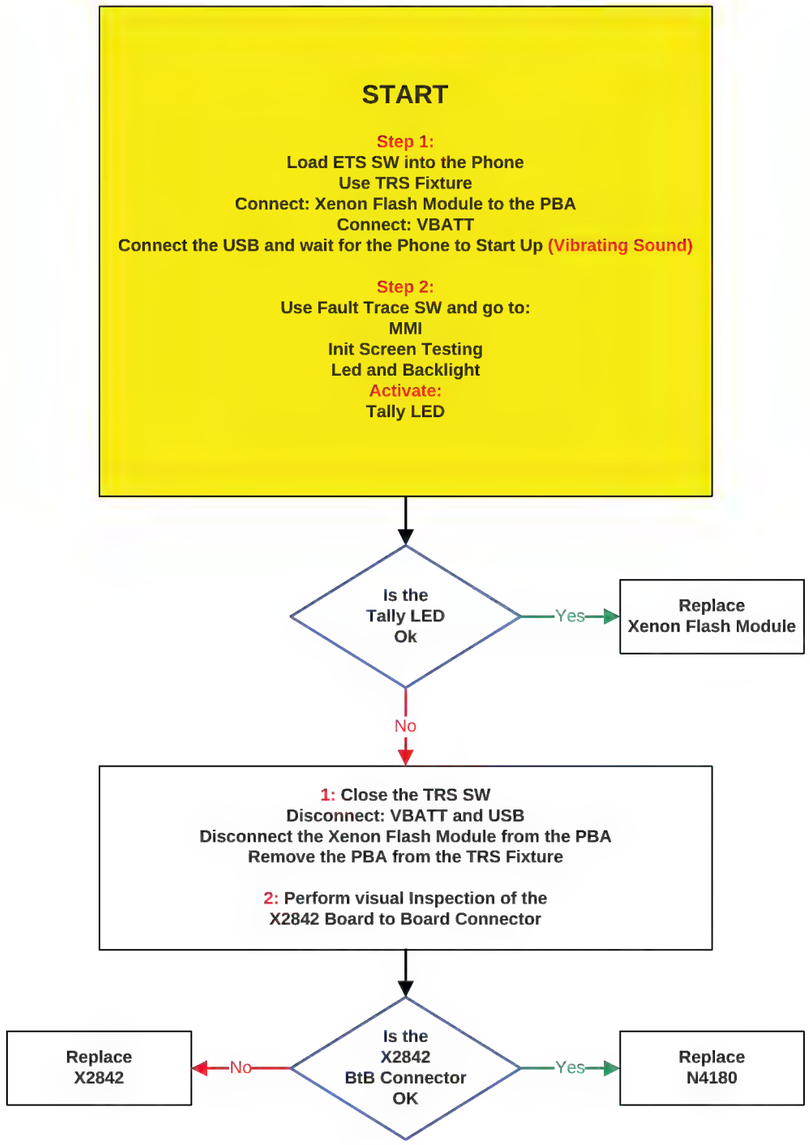
Key Center, Key End and Key Send illumination Problems


START
NOTE !
Key Center = Key Multi Task, Key Send = Key Call, Key End = Key Hang Up.
Is the Display illumination Ok
No
Go to Display illumination Problems
Yes
Is any of V4121 or V4122 Short circuit
No
Replace N4180
Yes
Replace V4121 or V4122

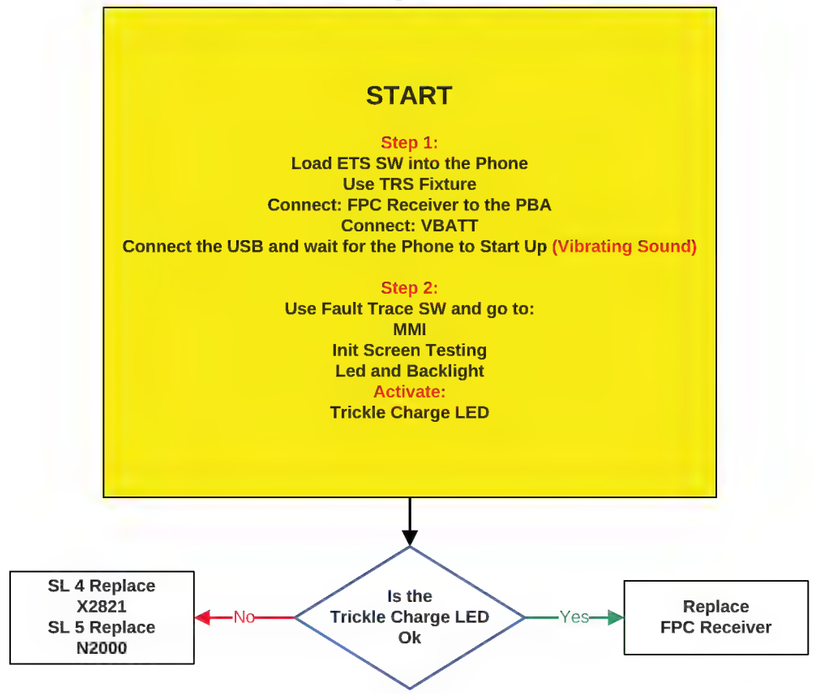
Red and Green LED Problems


START
Step 1:
Load ETS SW into the Phone
Use TRS Fixture
Connect: FPC Receiver to the PBA
Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Step 2:
Use Fault Trace SW and go to:
MMI
Init Screen Testing
Led and Backlight
Activate:
Red LED
Activate:
Green LED
Is the Red LED and the Green LED Ok
Yes
Replace FPC Receiver
No
1: Close the TRS SW
Disconnect: VBATT and USB
Disconnect the FPC Receiver from the PBA
2: Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
3.8 Volt DC at MP84 (R2618) and MP83 (R2619)
Yes
Replace X2821
No
Is any of MP85 (V2805_Cathode) or MP79 (V2806_Cathode) Short circuit to the GND
No
SL 5 Replace N2000 SL 4 Escalate
Yes
SL 5 Replace V2805 or V2806 SL 4 Escalate

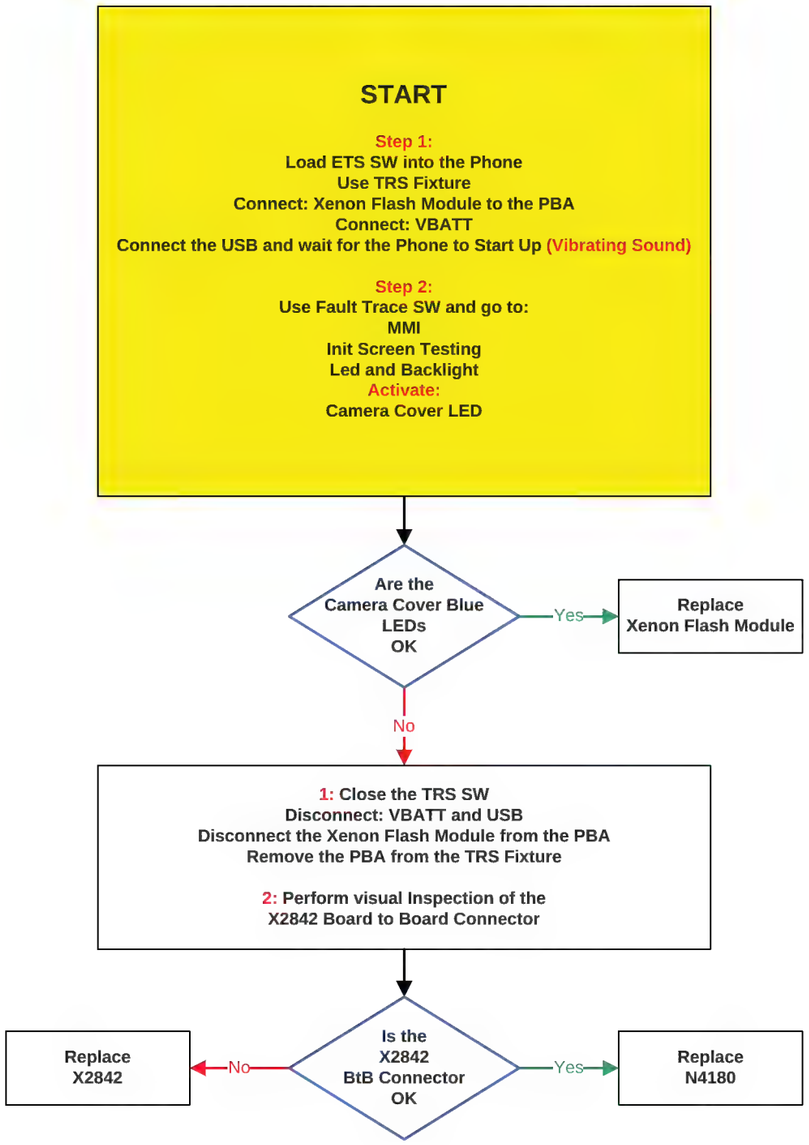
Tally LED Problems


START
Step 1:
Load ETS SW into the Phone
Use TRS Fixture
Connect: Xenon Flash Module to the PBA
Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Step 2:
Use Fault Trace SW and go to:
MMI
Init Screen Testing
Led and Backlight
Activate:
Tally LED
Is the Tally LED Ok
Yes
Replace Xenon Flash Module
No
1: Close the TRS SW
Disconnect: VBATT and USB
Disconnect the Xenon Flash Module from the PBA
Remove the PBA from the TRS Fixture
2: Perform visual Inspection of the X2842 Board to Board Connector
Is the X2842 BtB Connector OK
No
Replace X2842
Yes
Replace N4180

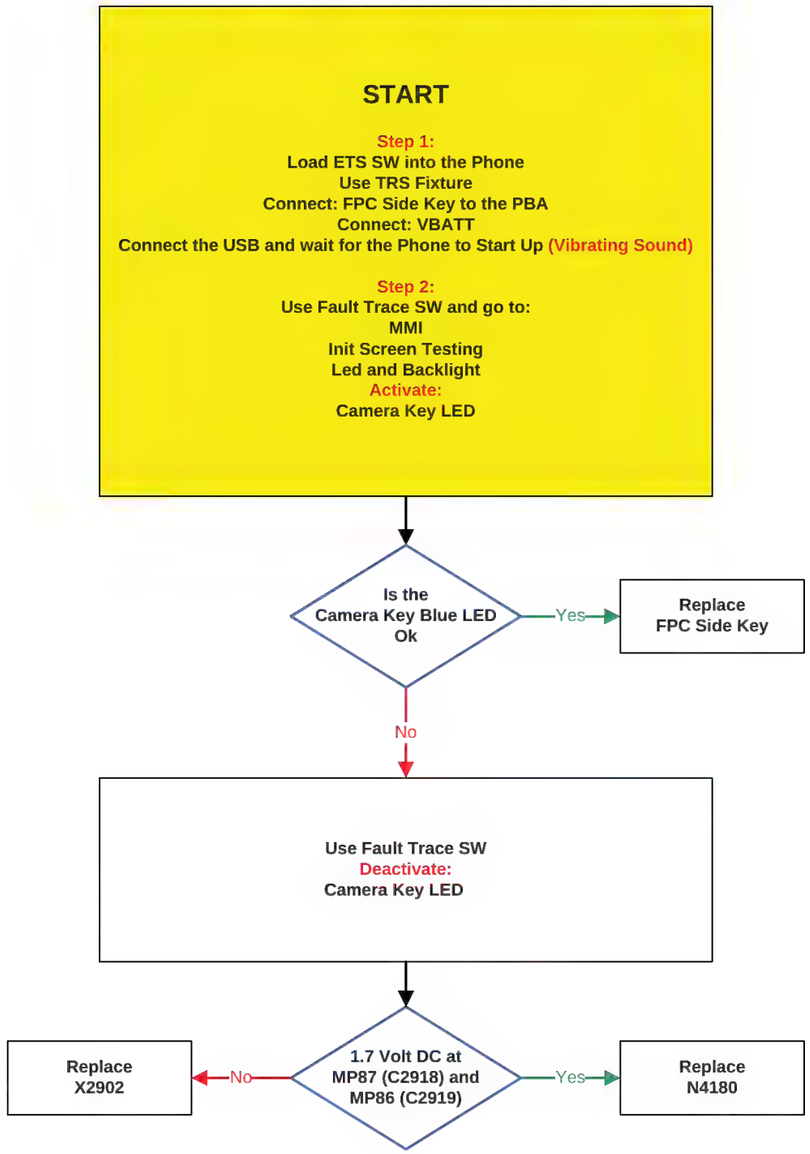
Trickle Charge LED Problems



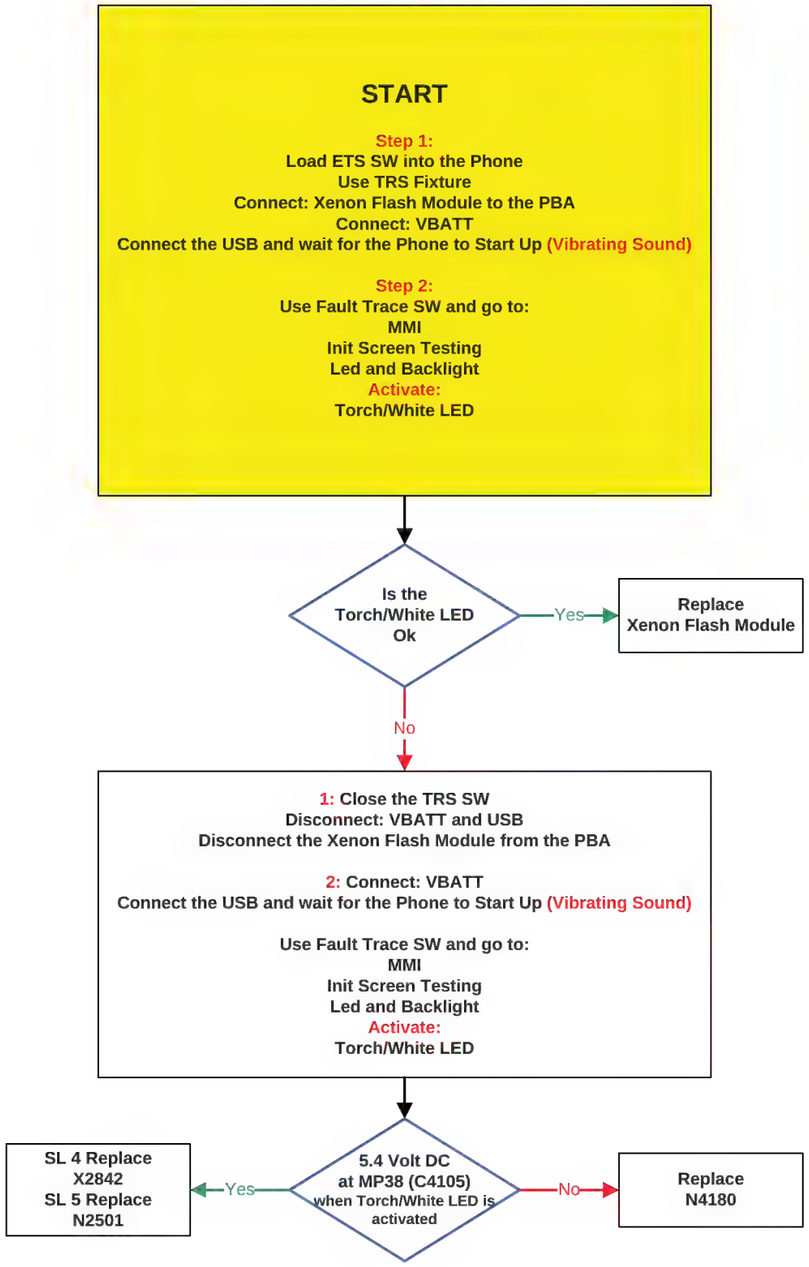
Camera Cover Blue LED Problems


START
Step 1:
Load ETS SW into the Phone
Use TRS Fixture
Connect: Xenon Flash Module to the PBA
Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Step 2:
Use Fault Trace SW and go to:
MMI
Init Screen Testing
Led and Backlight
Activate:
Camera Cover LED
Are the Camera Cover Blue LEDs OK
Yes
Replace Xenon Flash Module
No
1: Close the TRS SW
Disconnect: VBATT and USB
Disconnect the Xenon Flash Module from the PBA
Remove the PBA from the TRS Fixture
2: Perform visual Inspection of the X2842 Board to Board Connector
Is the X2842 BtB Connector OK
No
Replace X2842
Yes
Replace N4180

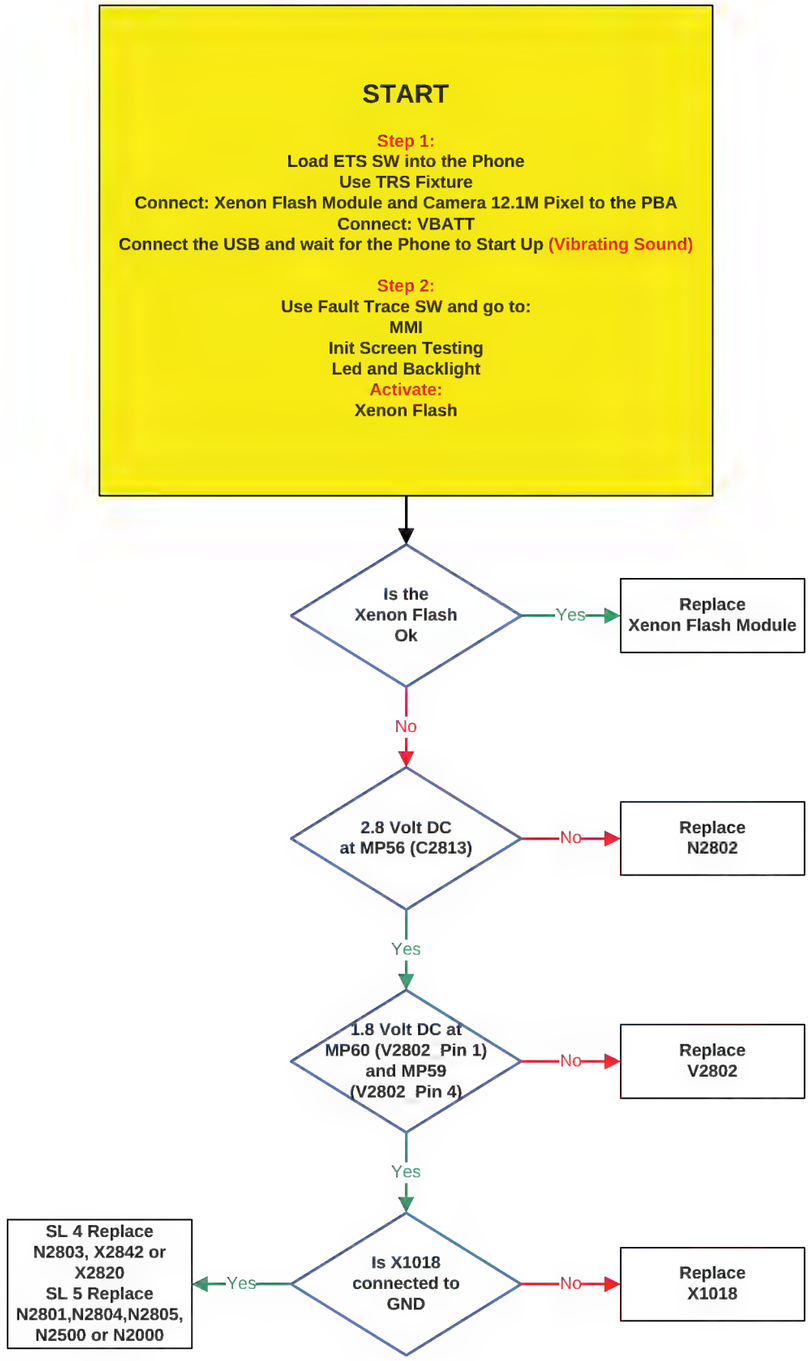
Camera Key Blue LED Problems



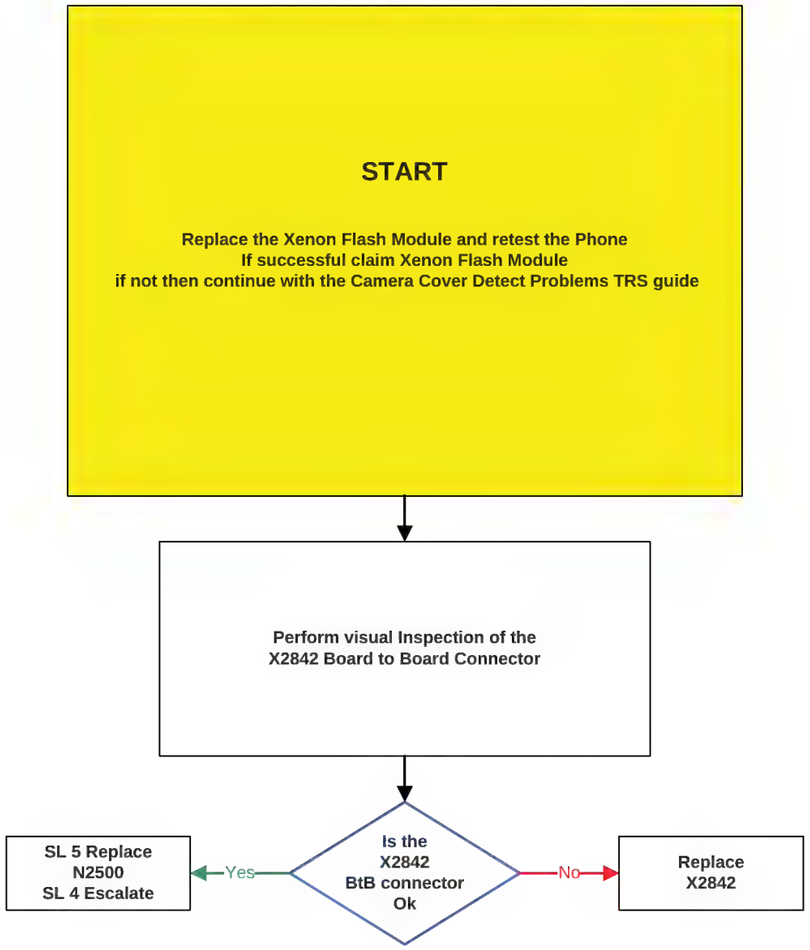
Torch (White) LED Problems



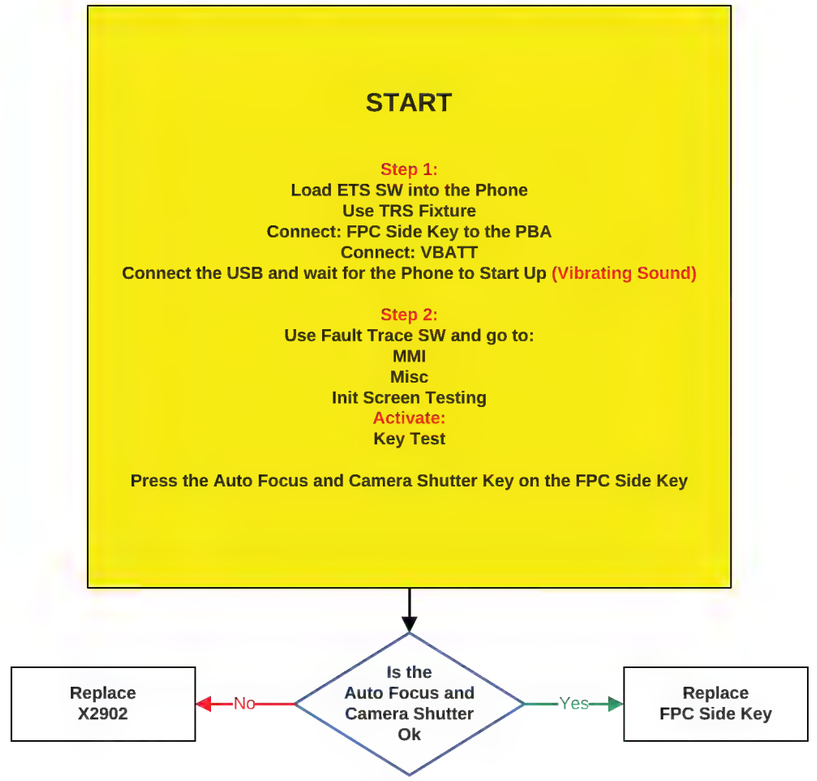
Xenon Flash Problems



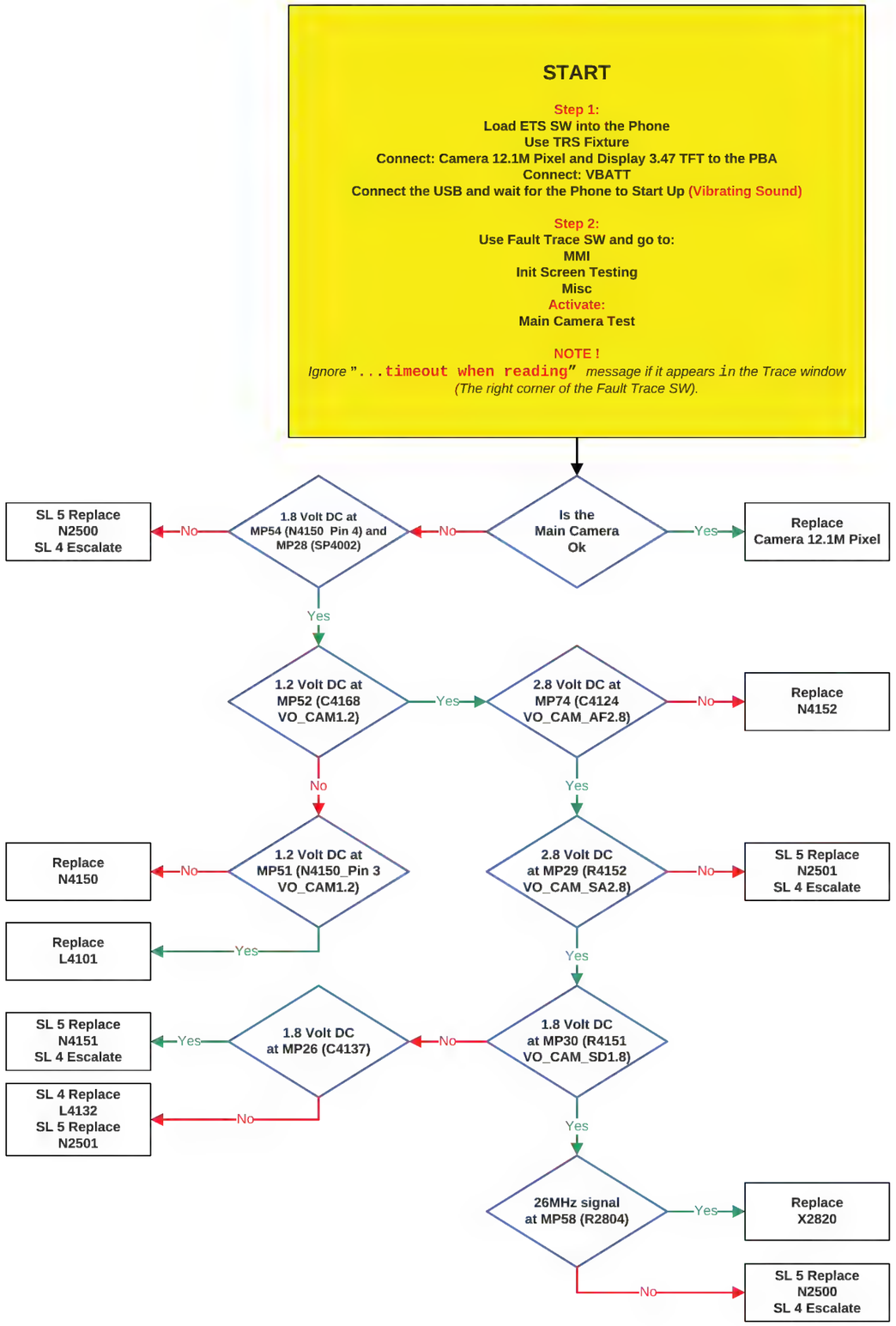
Camera Cover Detect Problems



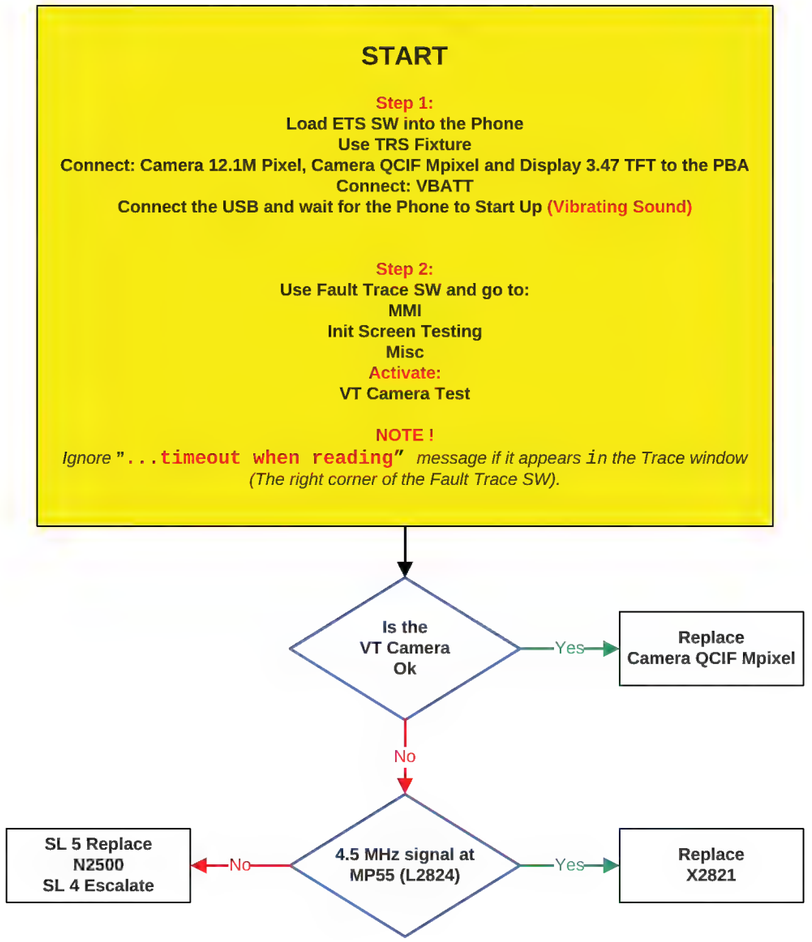
Auto Focus and Camera Shutter Problems



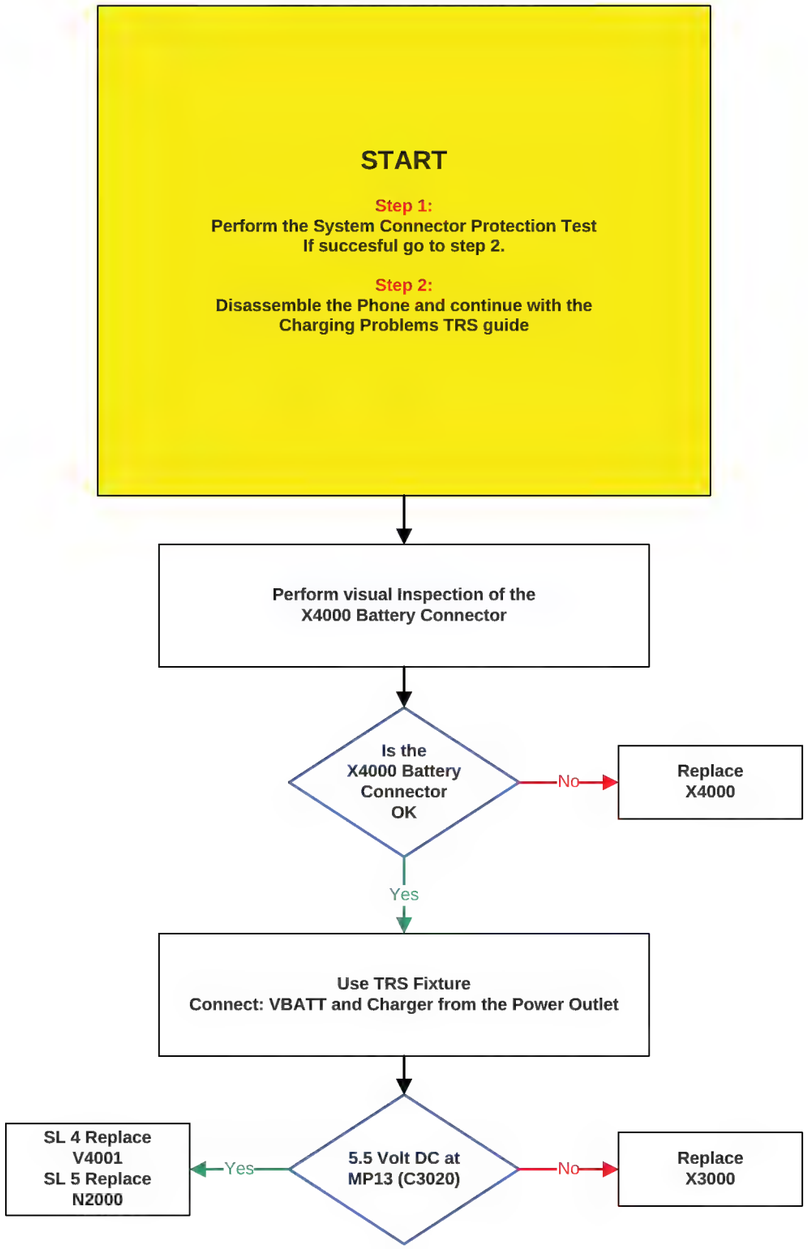
Main Camera Problems



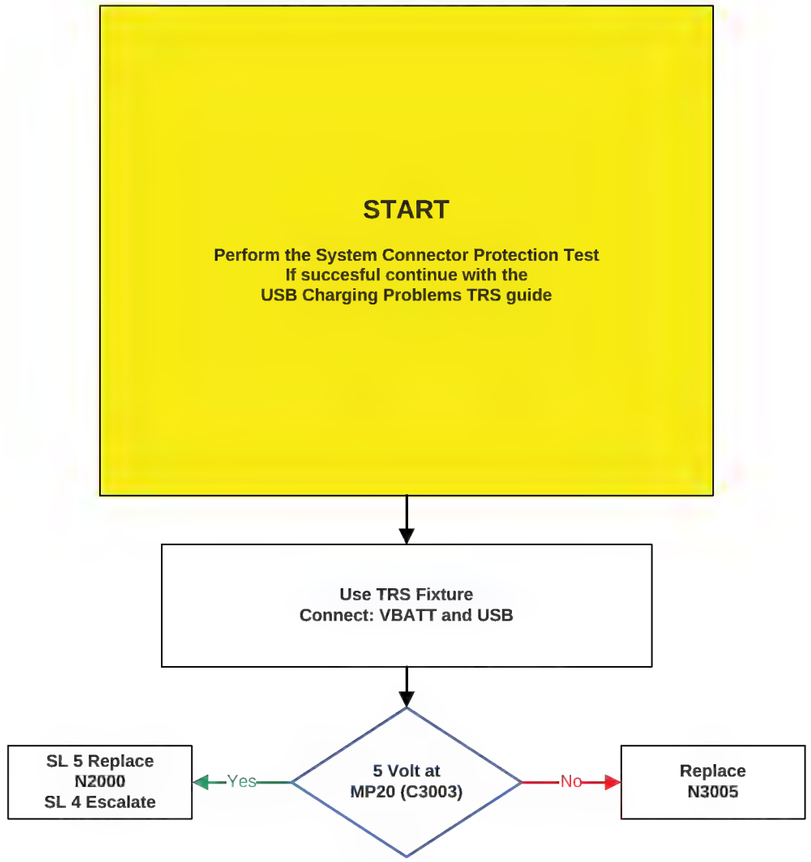
VT Camera Problems


START
Step 1:
Load ETS SW into the Phone
Use TRS Fixture
Connect: Camera 12.1M Pixel, Camera QCIF Mpixel and Display 3.47 TFT to the PBA
Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Step 2:
Use Fault Trace SW and go to:
MMI
Init Screen Testing
Misc
Activate:
VT Camera Test
NOTE !
Ignore "...timeout when reading" message if it appears in the Trace window
(The right corner of the Fault Trace SW).
Is the VT Camera Ok
Yes
Replace Camera QCIF Mpixel
No
4.5 MHz signal at MP55 (L2824)
Yes
Replace X2821
No
SL 5 Replace N2500 SL 4 Escalate

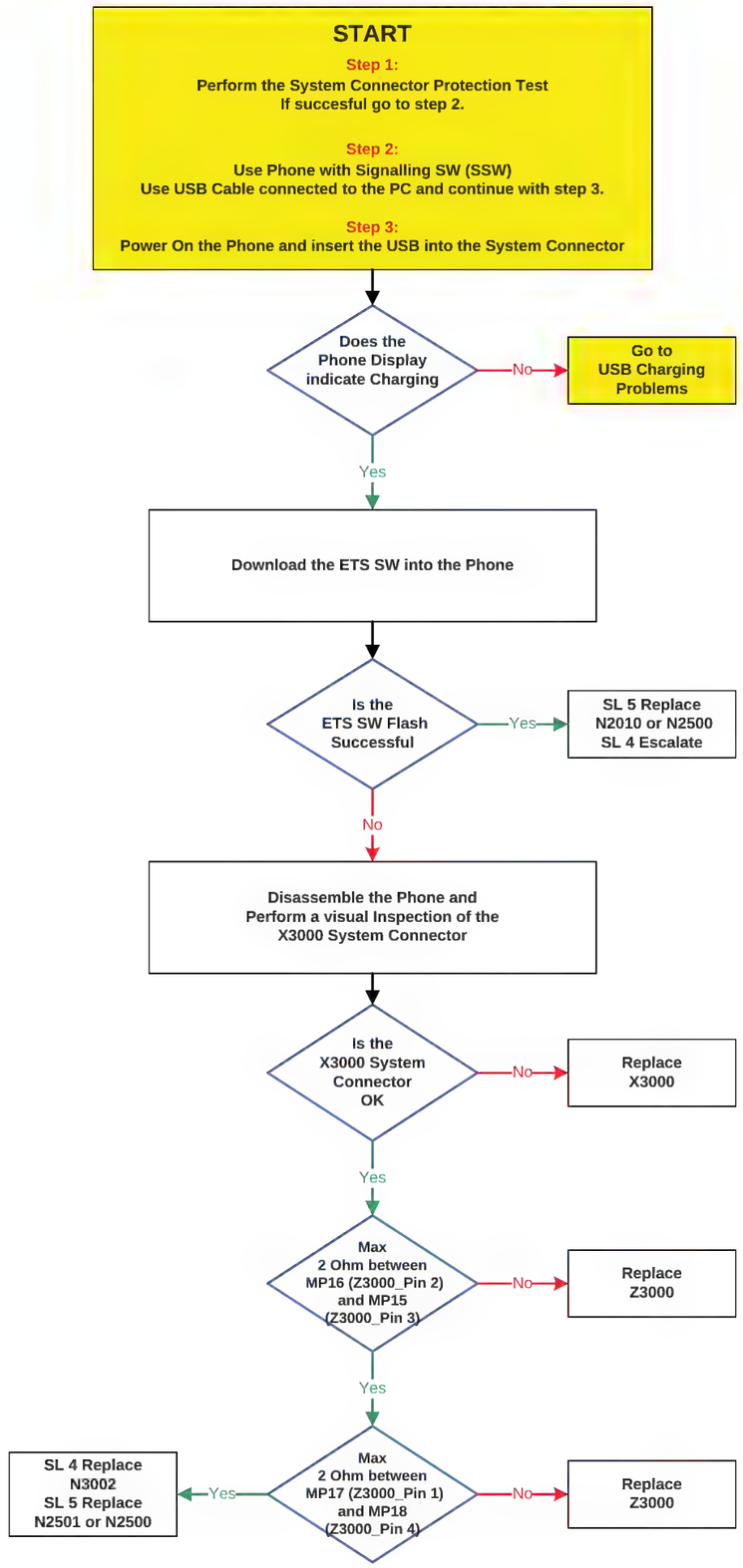
Charging Problems



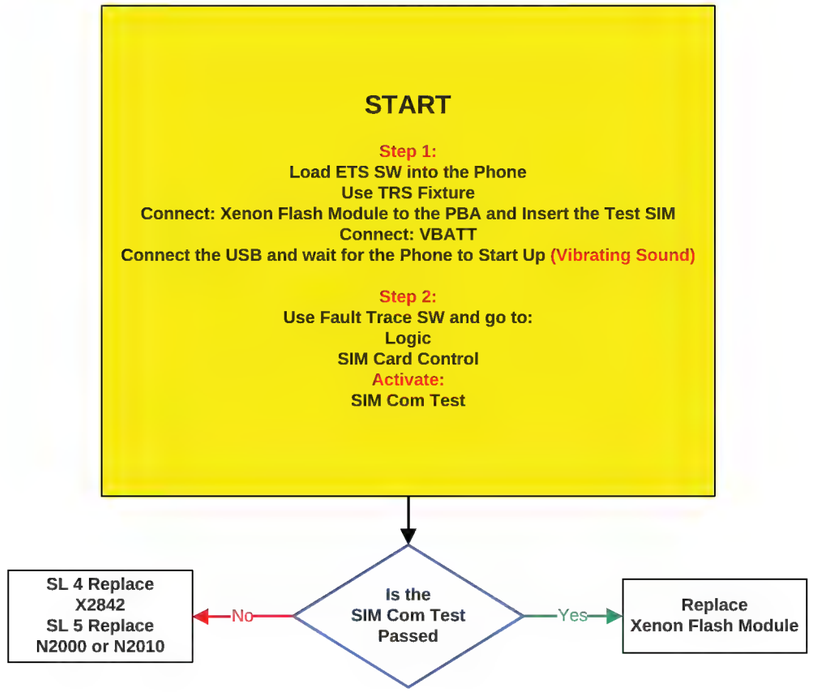
USB Charging Problems



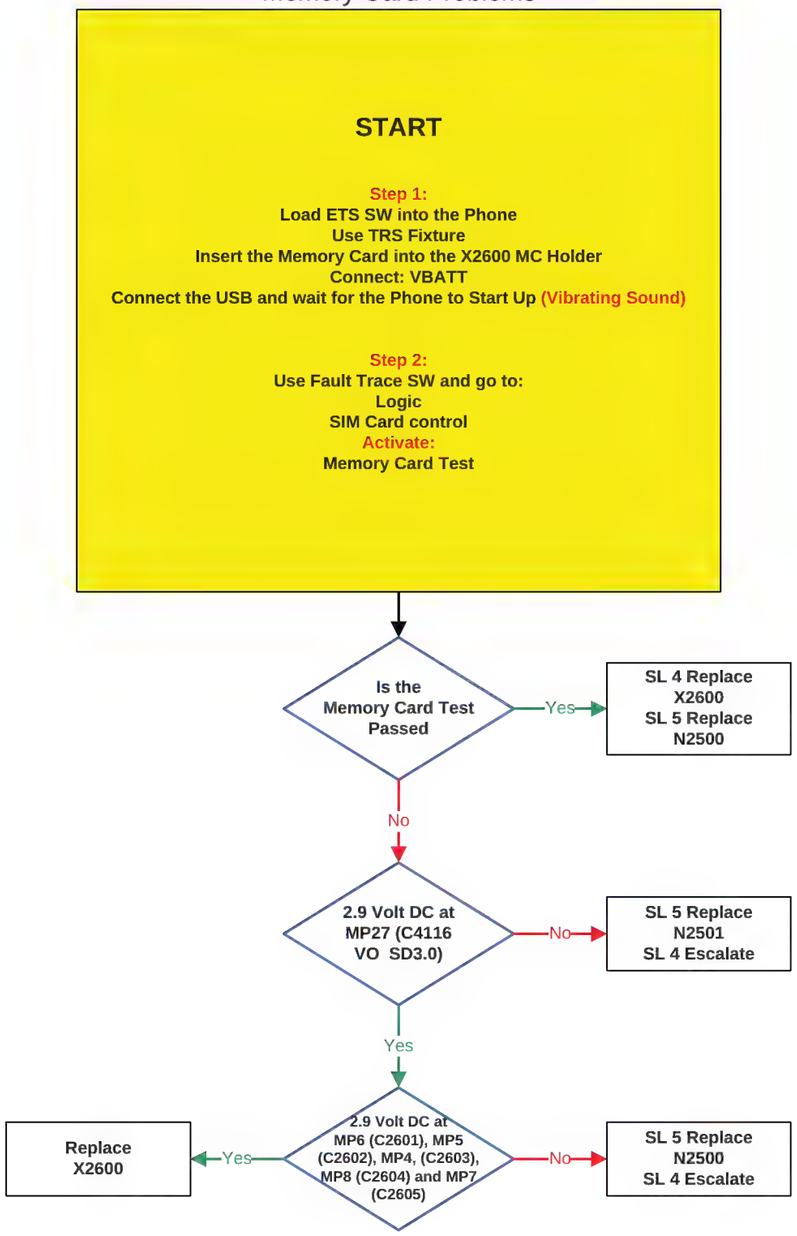
Data Communication Problems


START
Step 1:
Perform the System Connector Protection Test
If succesful go to step 2.
Step 2:
Use Phone with Signalling SW (SSW)
Use USB Cable connected to the PC and continue with step 3.
Step 3:
Power On the Phone and insert the USB into the System Connector
Does the Phone Display indicate Charging
No
Go to USB Charging Problems
Yes
Download the ETS SW into the Phone
Is the ETS SW Flash Successful
Yes
SL 5 Replace N2010 or N2500 SL 4 Escalate
No
Disassemble the Phone and Perform a visual Inspection of the X3000 System Connector
Is the X3000 System Connector OK
No
Replace X3000
Yes
Max 2 Ohm between MP16 (Z3000_Pin 2) and MP15 (Z3000_Pin 3)
No
Replace Z3000
Yes
Max 2 Ohm between MP17 (Z3000_Pin 1) and MP18 (Z3000_Pin 4)
Yes
SL 4 Replace N3002 SL 5 Replace N2501 or N2500
No
Replace Z3000

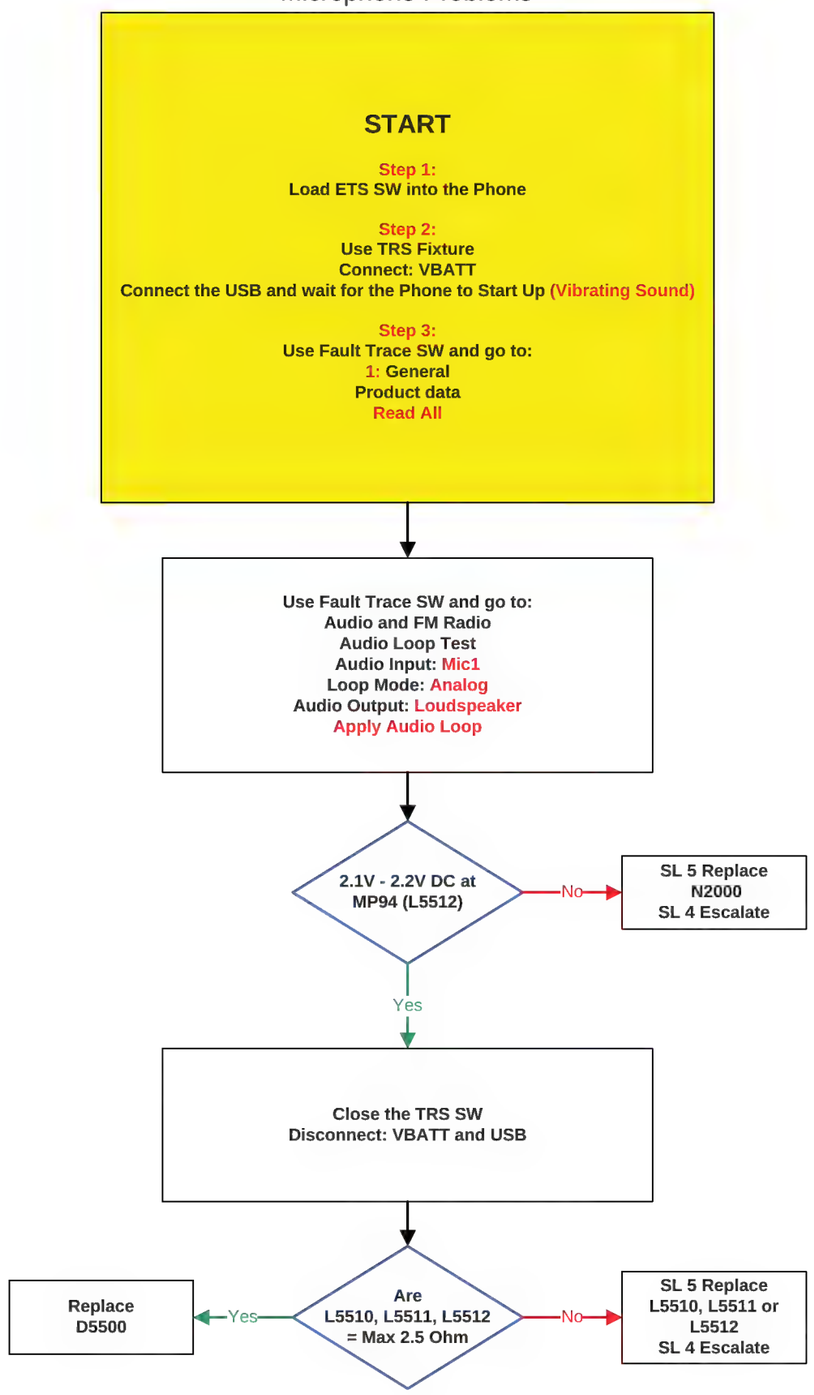
SIM Problems


START
Step 1:
Load ETS SW into the Phone
Use TRS Fixture
Connect: Xenon Flash Module to the PBA and Insert the Test SIM
Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Step 2:
Use Fault Trace SW and go to:
Logic
SIM Card Control
Activate:
SIM Com Test
Is the SIM Com Test Passed
No
SL 4 Replace X2842 SL 5 Replace N2000 or N2010
Yes
Replace Xenon Flash Module

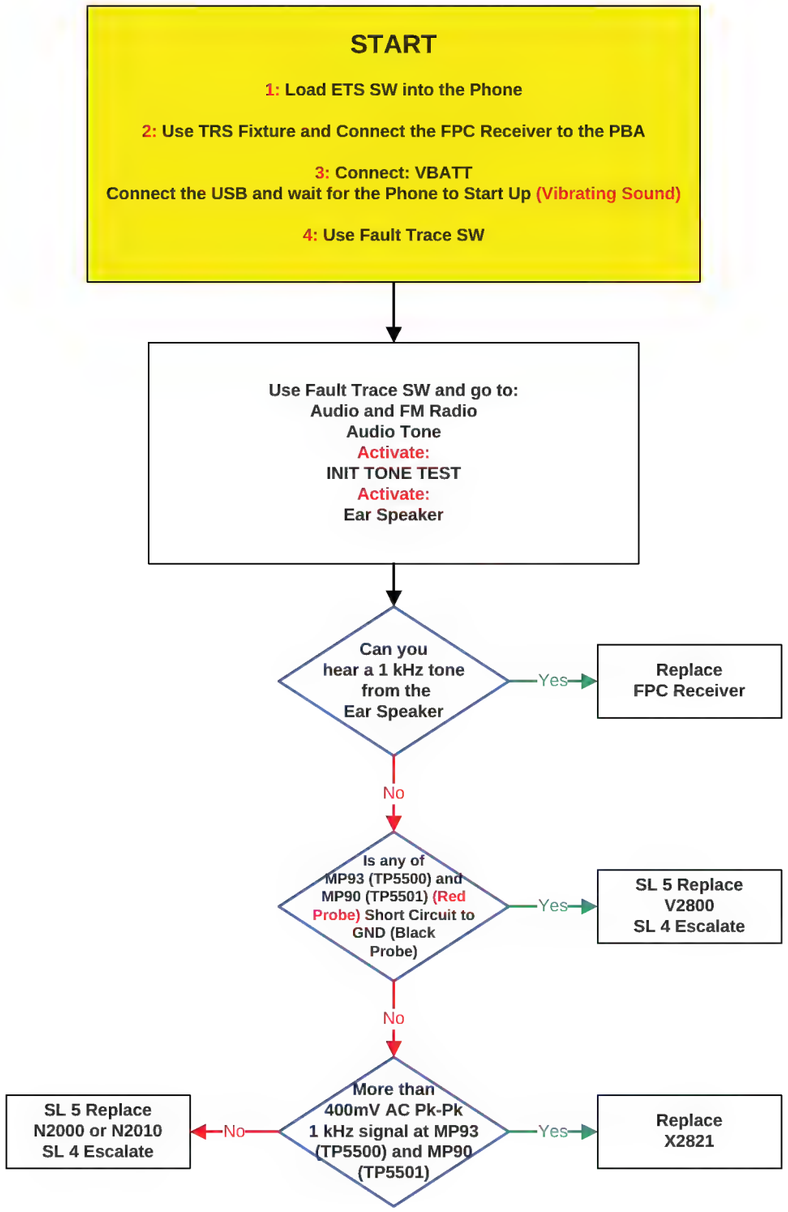
Memory Card Problems



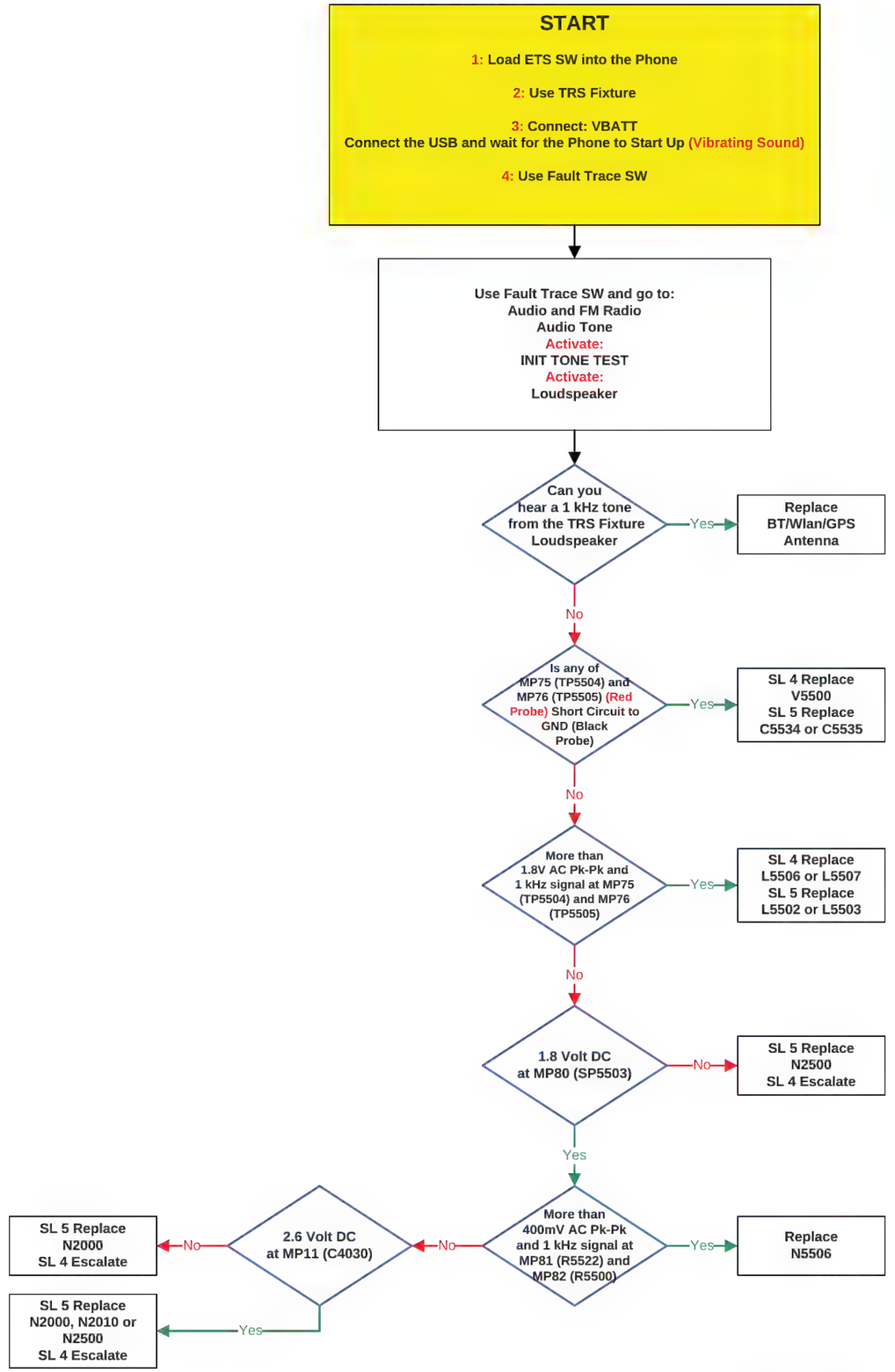
Microphone Problems



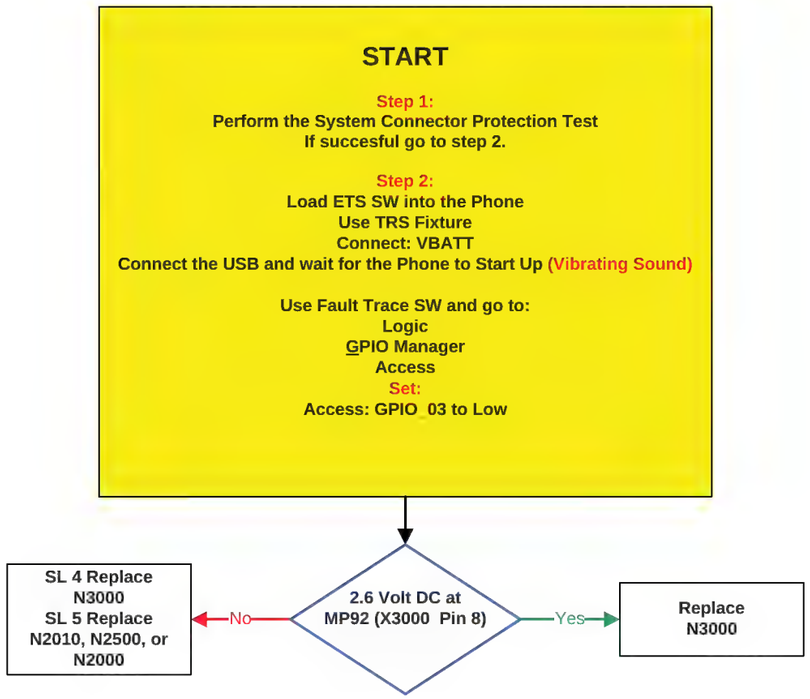
Ear Speaker Problems


START
1: Load ETS SW into the Phone
2: Use TRS Fixture and Connect the FPC Receiver to the PBA
3: Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
4: Use Fault Trace SW
Use Fault Trace SW and go to:
Audio and FM Radio
Audio Tone
Activate:
INIT TONE TEST
Activate:
Ear Speaker
Can you hear a 1 kHz tone from the Ear Speaker
Yes
Replace FPC Receiver
No
Is any of MP93 (TP5500) and MP90 (TP5501) (Red Probe) Short Circuit to GND (Black Probe)
Yes
SL 5 Replace V2800
SL 4 Escalate
No
More than 400mV AC Pk-Pk 1 kHz signal at MP93 (TP5500) and MP90 (TP5501)
No
SL 5 Replace N2000 or N2010
SL 4 Escalate
Yes
Replace X2821

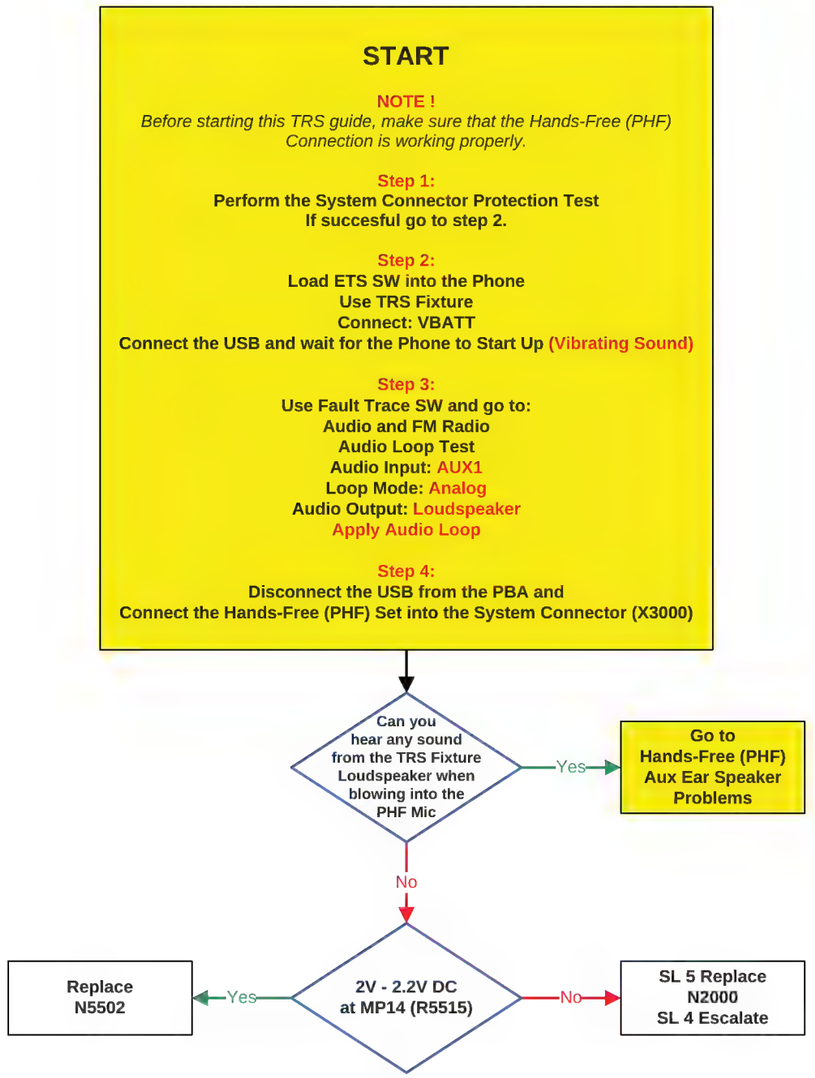
Loudspeaker Problems


START
1: Load ETS SW into the Phone
2: Use TRS Fixture
3: Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
4: Use Fault Trace SW
Use Fault Trace SW and go to:
Audio and FM Radio
Audio Tone
Activate:
INIT TONE TEST
Activate:
Loudspeaker
Can you hear a 1 kHz tone from the TRS Fixture Loudspeaker
Yes
Replace BT/Wlan/GPS Antenna
No
Is any of MP75 (TP5504) and MP76 (TP5505) (Red Probe) Short Circuit to GND (Black Probe)
Yes
SL 4 Replace V5500
SL 5 Replace C5534 or C5535
No
More than 1.8V AC Pk-Pk and 1 kHz signal at MP75 (TP5504) and MP76 (TP5505)
Yes
SL 4 Replace L5506 or L5507
SL 5 Replace L5502 or L5503
No
1.8 Volt DC at MP80 (SP5503)
No
SL 5 Replace N2500
SL 4 Escalate
Yes
More than 400mV AC Pk-Pk and 1 kHz signal at MP81 (R5522) and MP82 (R5500)
Yes
Replace N5506
No
2.6 Volt DC at MP11 (C4030)
No
SL 5 Replace N2000
SL 4 Escalate
Yes
SL 5 Replace N2000, N2010 or N2500
SL 4 Escalate

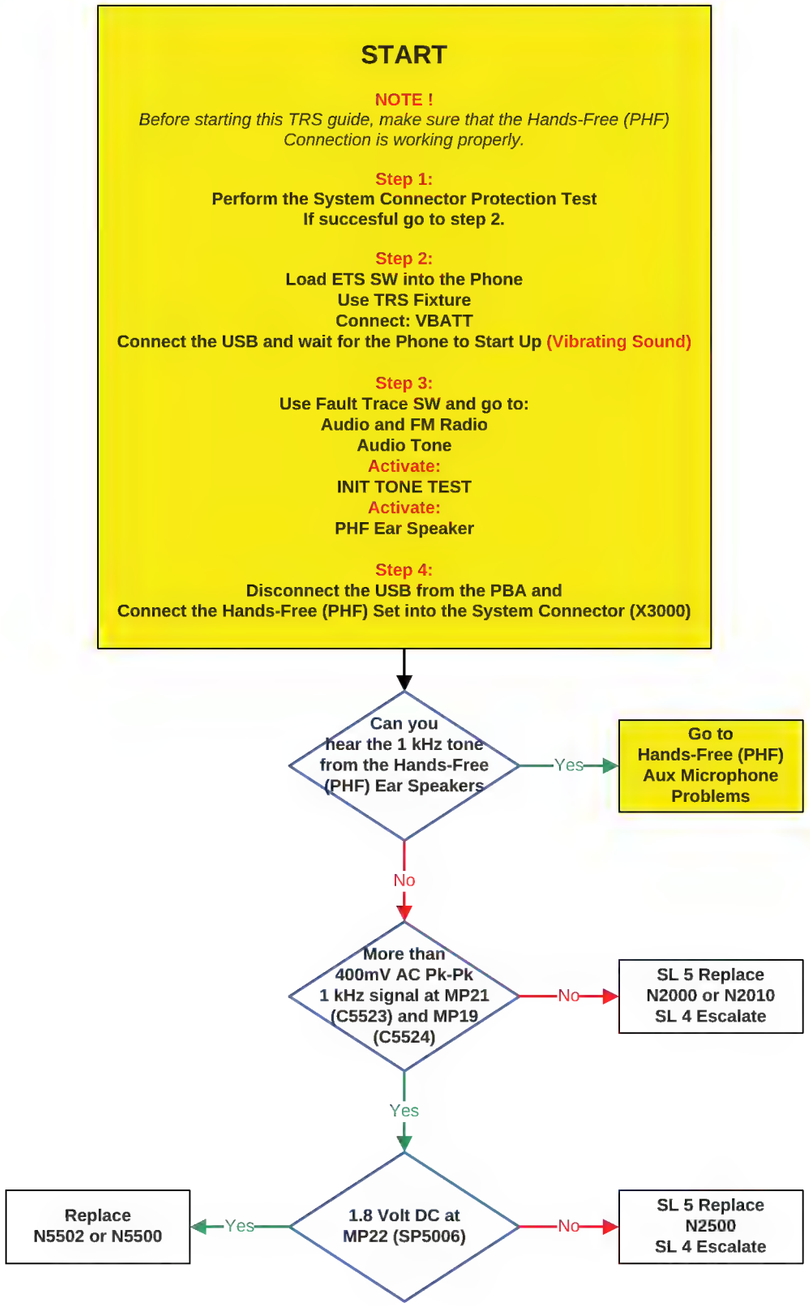
Hands-Free (PHF) Connection Problems



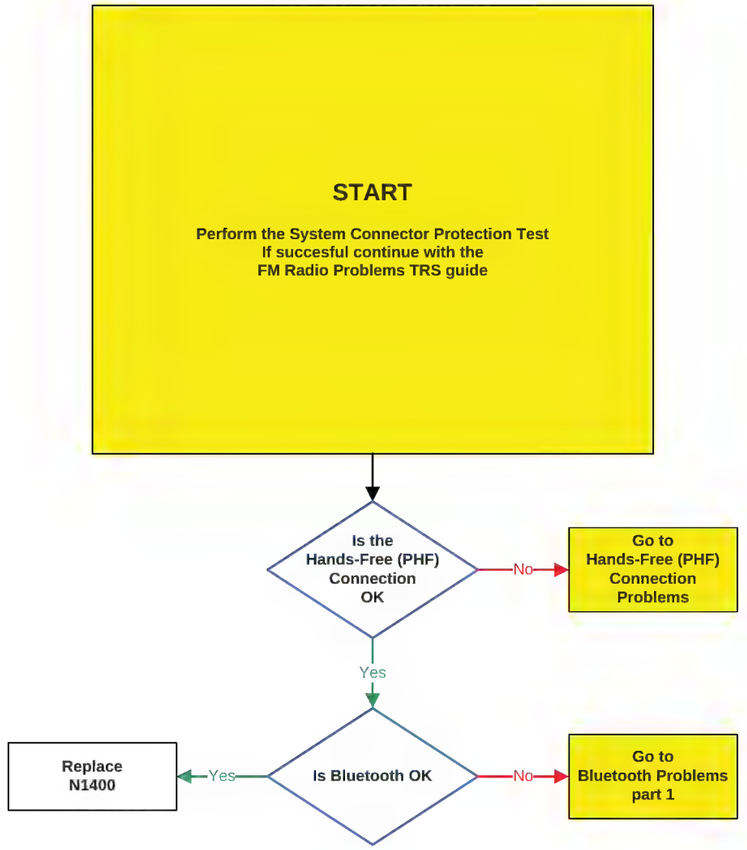
Hands-Free (PHF) Aux Microphone Problems


START
NOTE !
Before starting this TRS guide, make sure that the Hands-Free (PHF) Connection is working properly.
Step 1:
Perform the System Connector Protection Test
If succesful go to step 2.
Step 2:
Load ETS SW into the Phone
Use TRS Fixture
Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Step 3:
Use Fault Trace SW and go to:
Audio and FM Radio
Audio Loop Test
Audio Input: AUX1
Loop Mode: Analog
Audio Output: Loudspeaker
Apply Audio Loop
Step 4:
Disconnect the USB from the PBA and
Connect the Hands-Free (PHF) Set into the System Connector (X3000)
Can you hear any sound from the TRS Fixture Loudspeaker when blowing into the PHF Mic
Yes
Go to Hands-Free (PHF) Aux Ear Speaker Problems
No
2V - 2.2V DC at MP14 (R5515)
Yes
Replace N5502
No
SL 5 Replace N2000
SL 4 Escalate

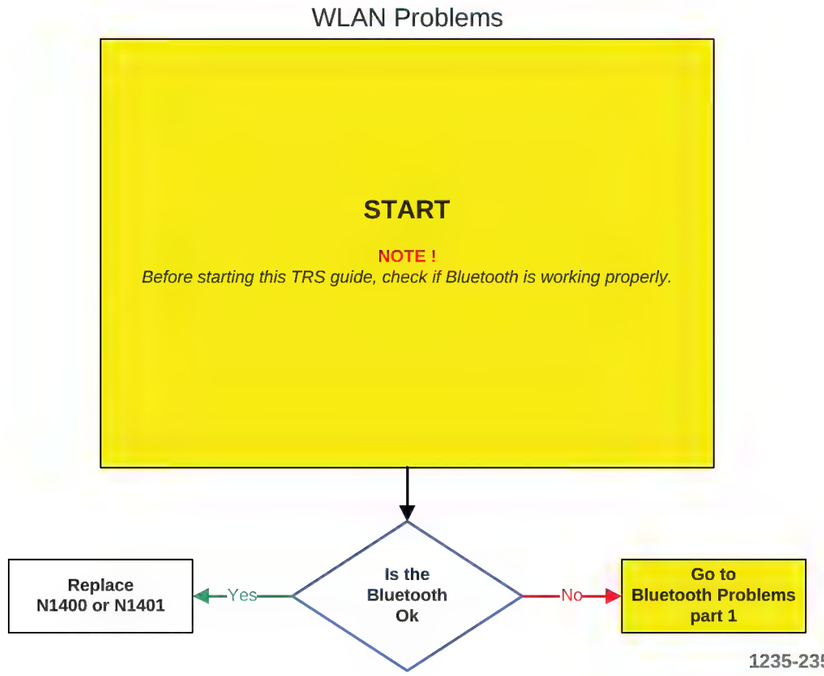
Hands-Free (PHF) Aux Ear Speaker Problems


START
NOTE !
Before starting this TRS guide, make sure that the Hands-Free (PHF) Connection is working properly.
Step 1:
Perform the System Connector Protection Test
If succesful go to step 2.
Step 2:
Load ETS SW into the Phone
Use TRS Fixture
Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Step 3:
Use Fault Trace SW and go to:
Audio and FM Radio
Audio Tone
Activate:
INIT TONE TEST
Activate:
PHF Ear Speaker
Step 4:
Disconnect the USB from the PBA and
Connect the Hands-Free (PHF) Set into the System Connector (X3000)
Can you hear the 1 kHz tone from the Hands-Free (PHF) Ear Speakers
Yes
Go to Hands-Free (PHF) Aux Microphone Problems
No
More than 400mV AC Pk-Pk 1 kHz signal at MP21 (C5523) and MP19 (C5524)
No
SL 5 Replace N2000 or N2010 SL 4 Escalate
Yes
1.8 Volt DC at MP22 (SP5006)
Yes
Replace N5502 or N5500
No
SL 5 Replace N2500 SL 4 Escalate

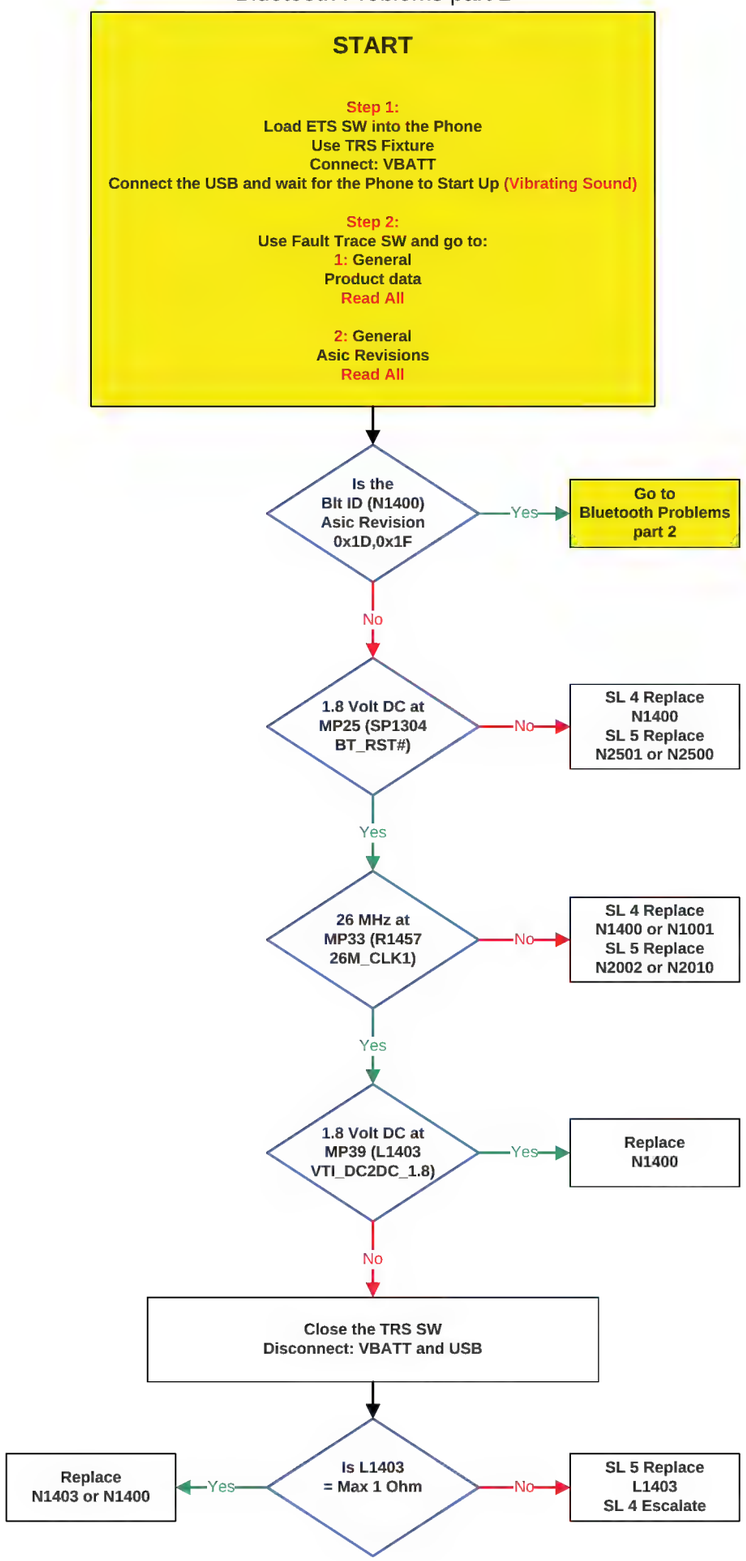
FM Radio Problems



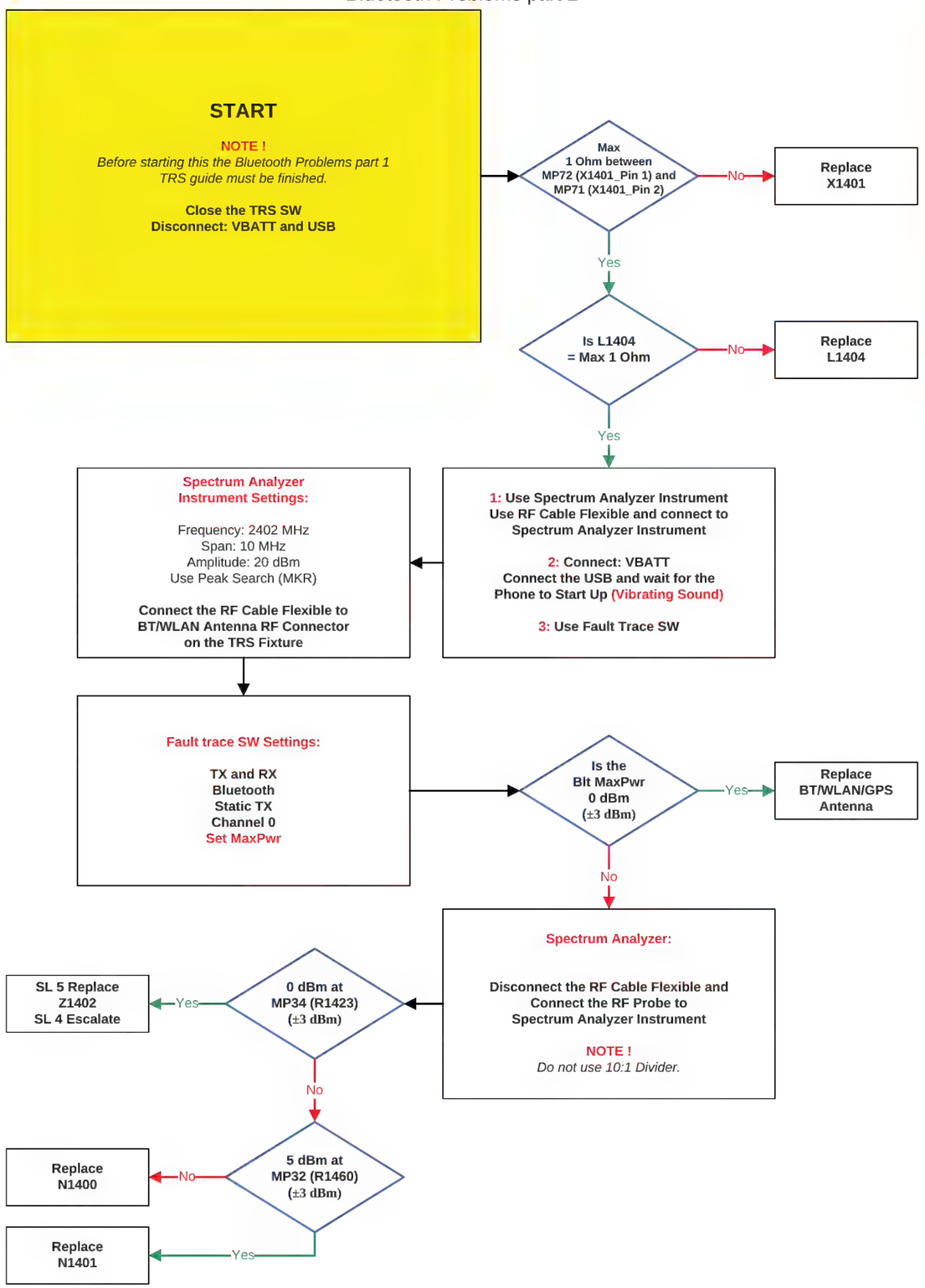
WLAN Problems



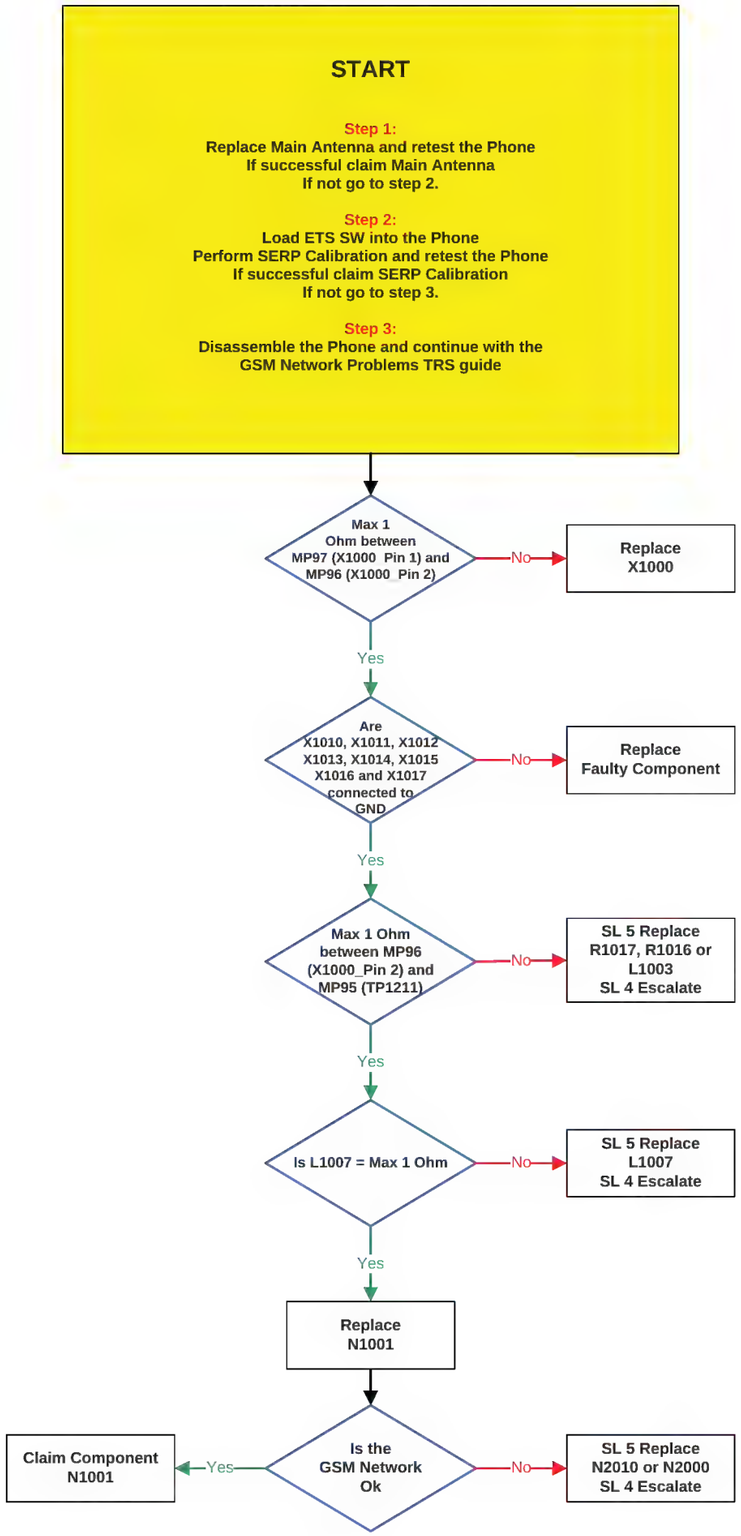
Bluetooth Problems part 1



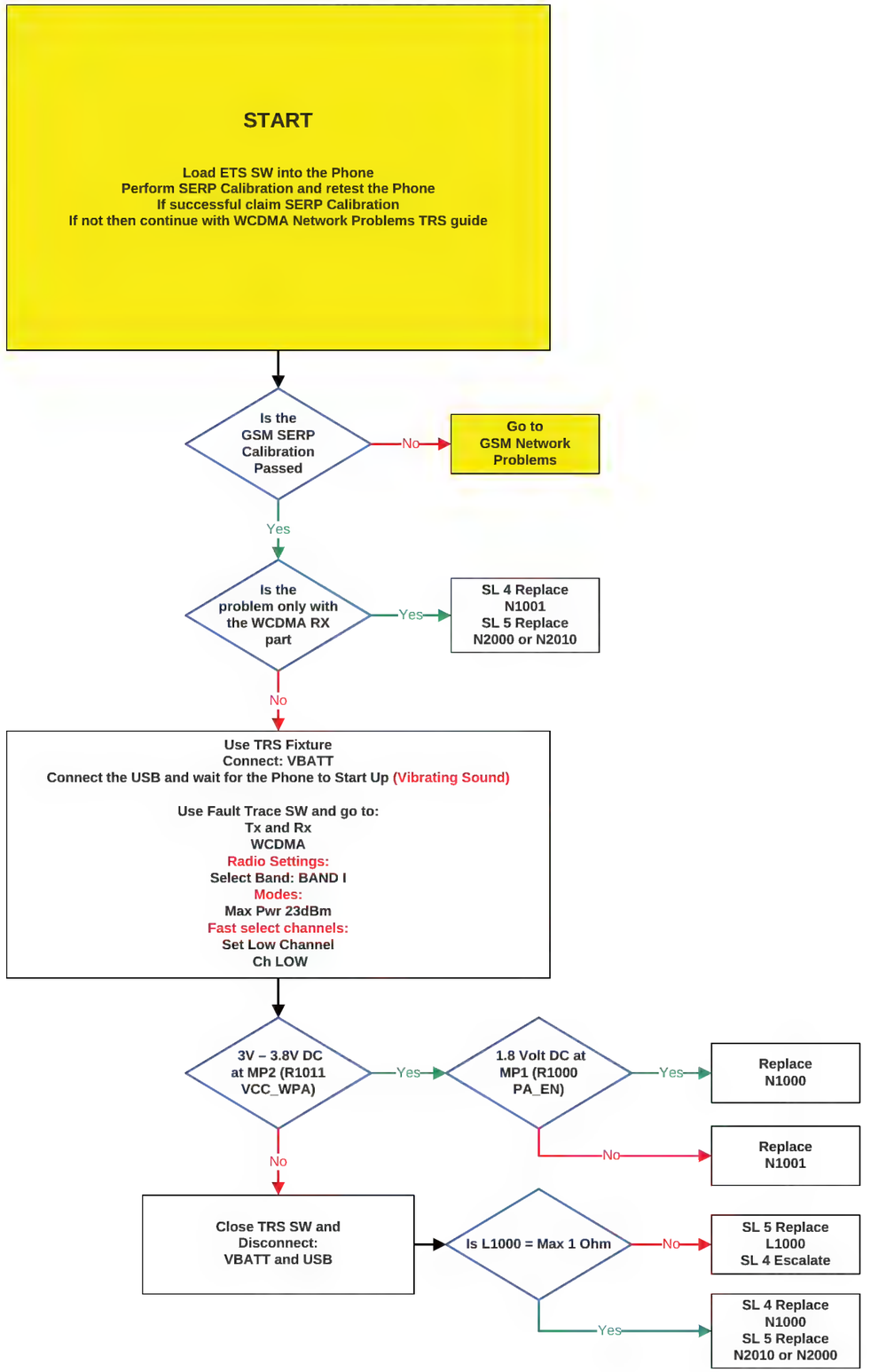
Bluetooth Problems part 2


START
NOTE !
Before starting this the Bluetooth Problems part 1 TRS guide must be finished.
Close the TRS SW
Disconnect: VBATT and USB
Max 1 Ohm between MP72 (X1401_Pin 1) and MP71 (X1401_Pin 2)
No
Replace X1401
Yes
Is L1404 = Max 1 Ohm
No
Replace L1404
Yes
Spectrum Analyzer Instrument Settings:
Frequency: 2402 MHz
Span: 10 MHz
Amplitude: 20 dBm
Use Peak Search (MKR)
Connect the RF Cable Flexible to BT/WLAN Antenna RF Connector on the TRS Fixture
1: Use Spectrum Analyzer Instrument
Use RF Cable Flexible and connect to Spectrum Analyzer Instrument
2: Connect: VBATT
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
3: Use Fault Trace SW
Fault trace SW Settings:
TX and RX
Bluetooth
Static TX
Channel 0
Set MaxPwr
Is the Blt MaxPwr 0 dBm (±3 dBm)
Yes
Replace BT/WLAN/GPS Antenna
No
Spectrum Analyzer:
Disconnect the RF Cable Flexible and Connect the RF Probe to Spectrum Analyzer Instrument
NOTE !
Do not use 10:1 Divider.
0 dBm at MP34 (R1423) (±3 dBm)
Yes
SL 5 Replace Z1402
SL 4 Escalate
No
5 dBm at MP32 (R1460) (±3 dBm)
No
Replace N1400
Yes
Replace N1401

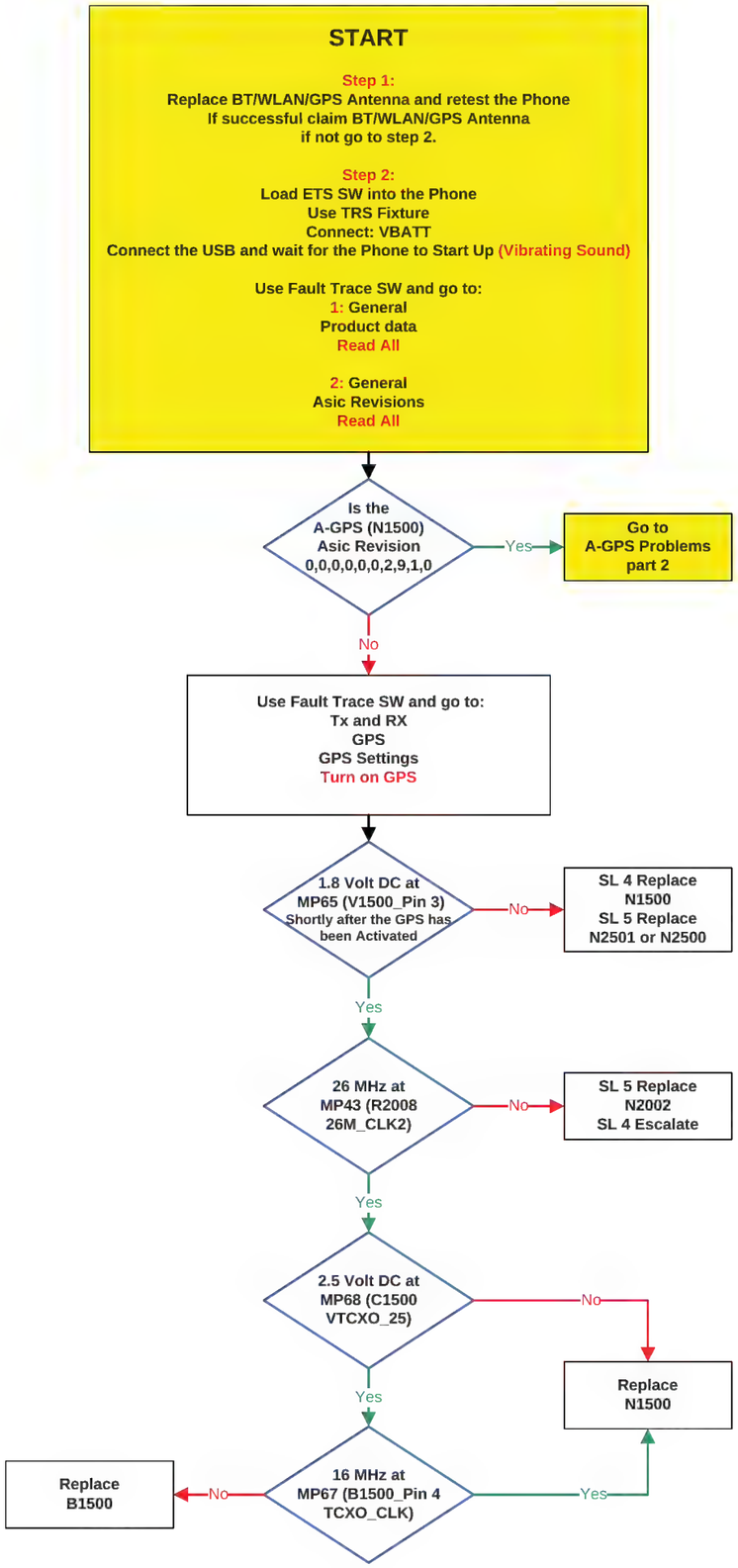
GSM Network Problems


START
Step 1:
Replace Main Antenna and retest the Phone
If successful claim Main Antenna
If not go to step 2.
Step 2:
Load ETS SW into the Phone
Perform SERP Calibration and retest the Phone
If successful claim SERP Calibration
If not go to step 3.
Step 3:
Disassemble the Phone and continue with the
GSM Network Problems TRS guide
Max 1 Ohm between MP97 (X1000 Pin 1) and MP96 (X1000 Pin 2)
No
Replace X1000
Yes
Are X1010, X1011, X1012 X1013, X1014, X1015 X1016 and X1017 connected to GND
No
Replace Faulty Component
Yes
Max 1 Ohm between MP96 (X1000_Pin 2) and MP95 (TP1211)
No
SL 5 Replace R1017, R1016 or L1003
SL 4 Escalate
Yes
Is L1007 = Max 1 Ohm
No
SL 5 Replace L1007
SL 4 Escalate
Yes
Replace N1001
Is the GSM Network Ok
No
SL 5 Replace N2010 or N2000
SL 4 Escalate
Yes
Claim Component N1001

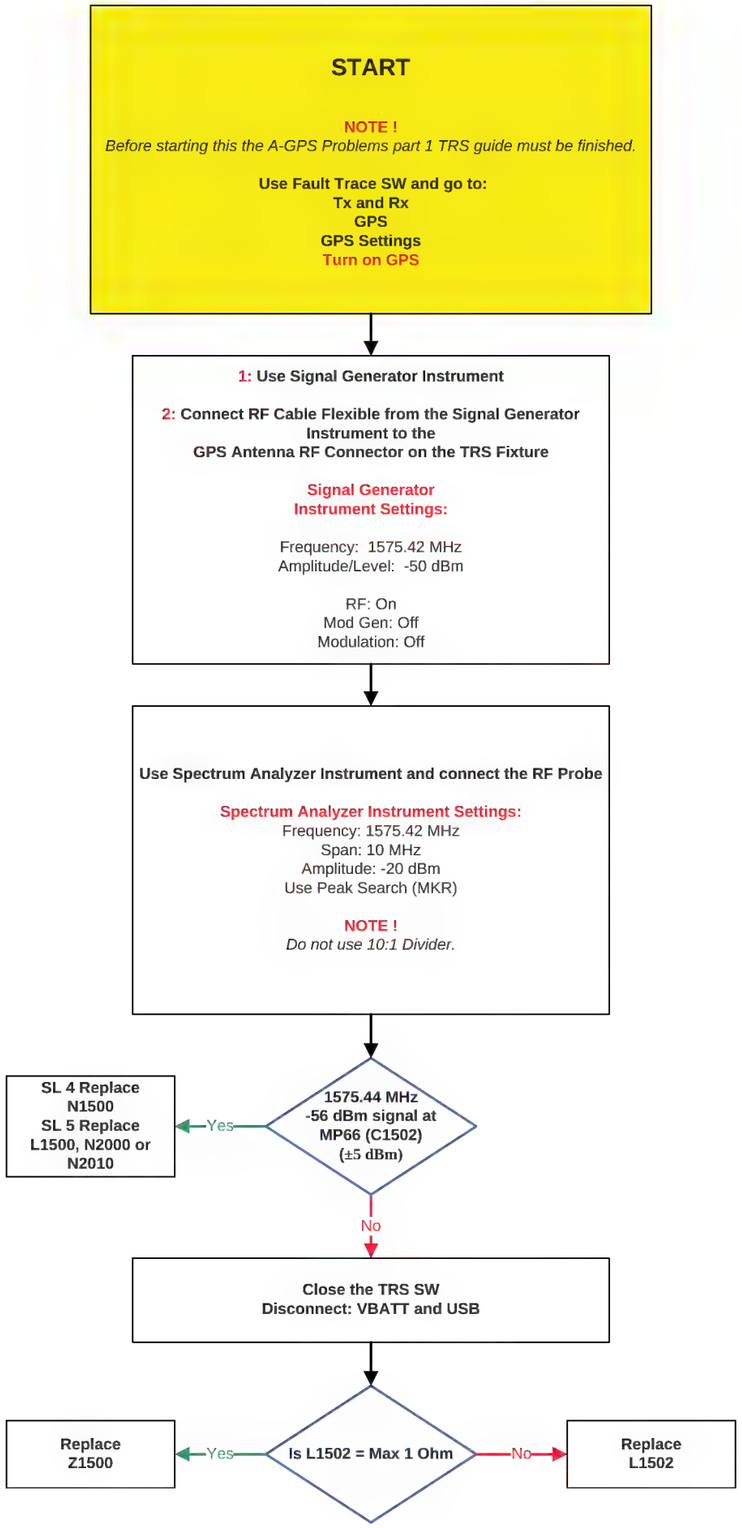
WCDMA Network Problems



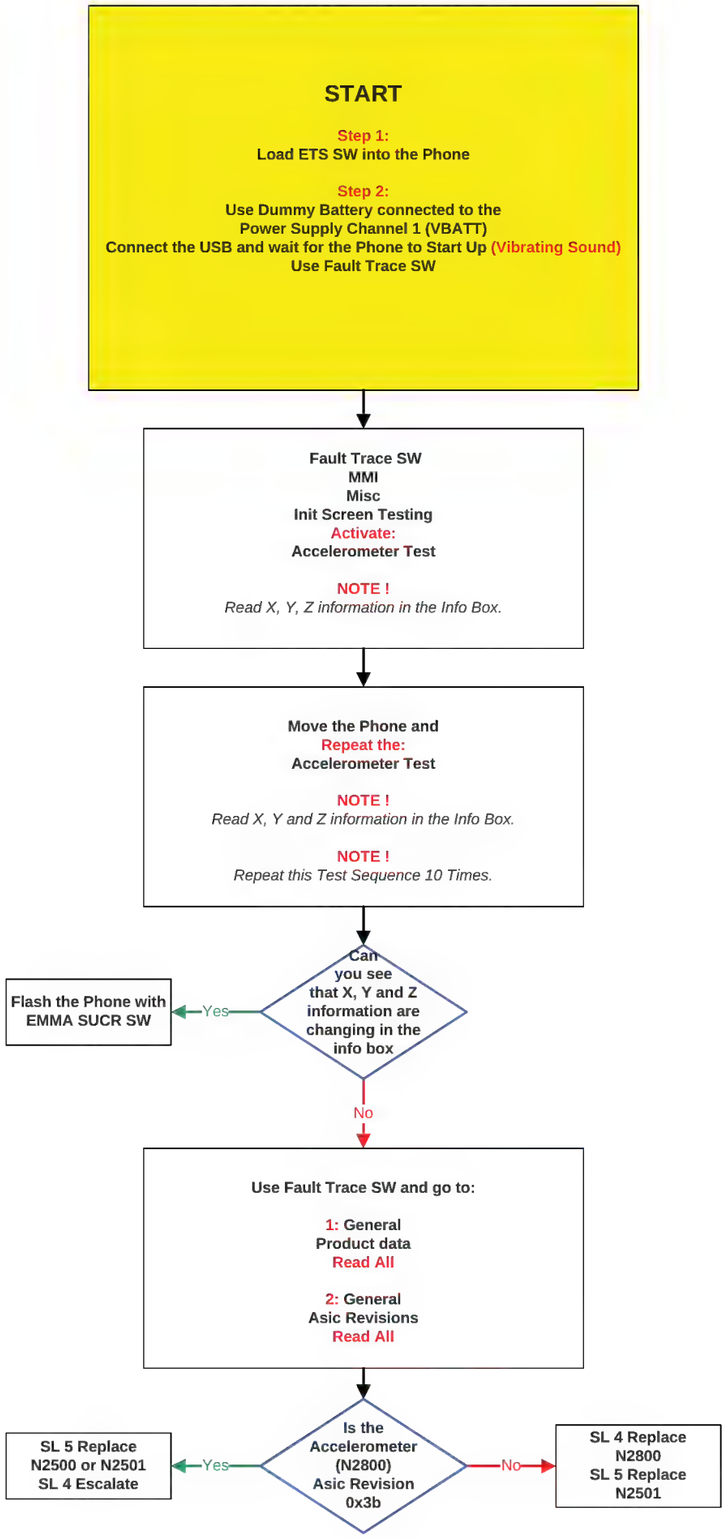
A-GPS Problems part 1



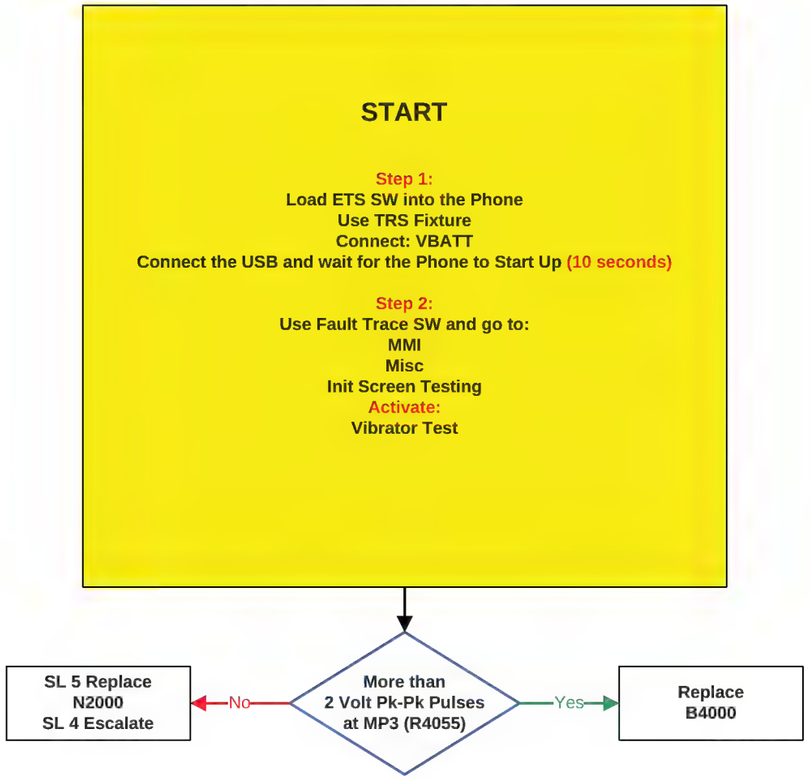
A-GPS Problems part 2


START
NOTE !
Before starting this the A-GPS Problems part 1 TRS guide must be finished.
Use Fault Trace SW and go to:
Tx and Rx
GPS
GPS Settings
Turn on GPS
1: Use Signal Generator Instrument
2: Connect RF Cable Flexible from the Signal Generator Instrument to the GPS Antenna RF Connector on the TRS Fixture
Signal Generator Instrument Settings:
Frequency: 1575.42 MHz
Amplitude/Level: -50 dBm
RF: On
Mod Gen: Off
Modulation: Off
Use Spectrum Analyzer Instrument and connect the RF Probe
Spectrum Analyzer Instrument Settings:
Frequency: 1575.42 MHz
Span: 10 MHz
Amplitude: -20 dBm
Use Peak Search (MKR)
NOTE !
Do not use 10:1 Divider.
1575.44 MHz -56 dBm signal at MP66 (C1502) (±5 dBm)
Yes
SL 4 Replace N1500
SL 5 Replace L1500, N2000 or N2010
No
Close the TRS SW
Disconnect: VBATT and USB
Is L1502 = Max 1 Ohm
Yes
Replace Z1500
No
Replace L1502

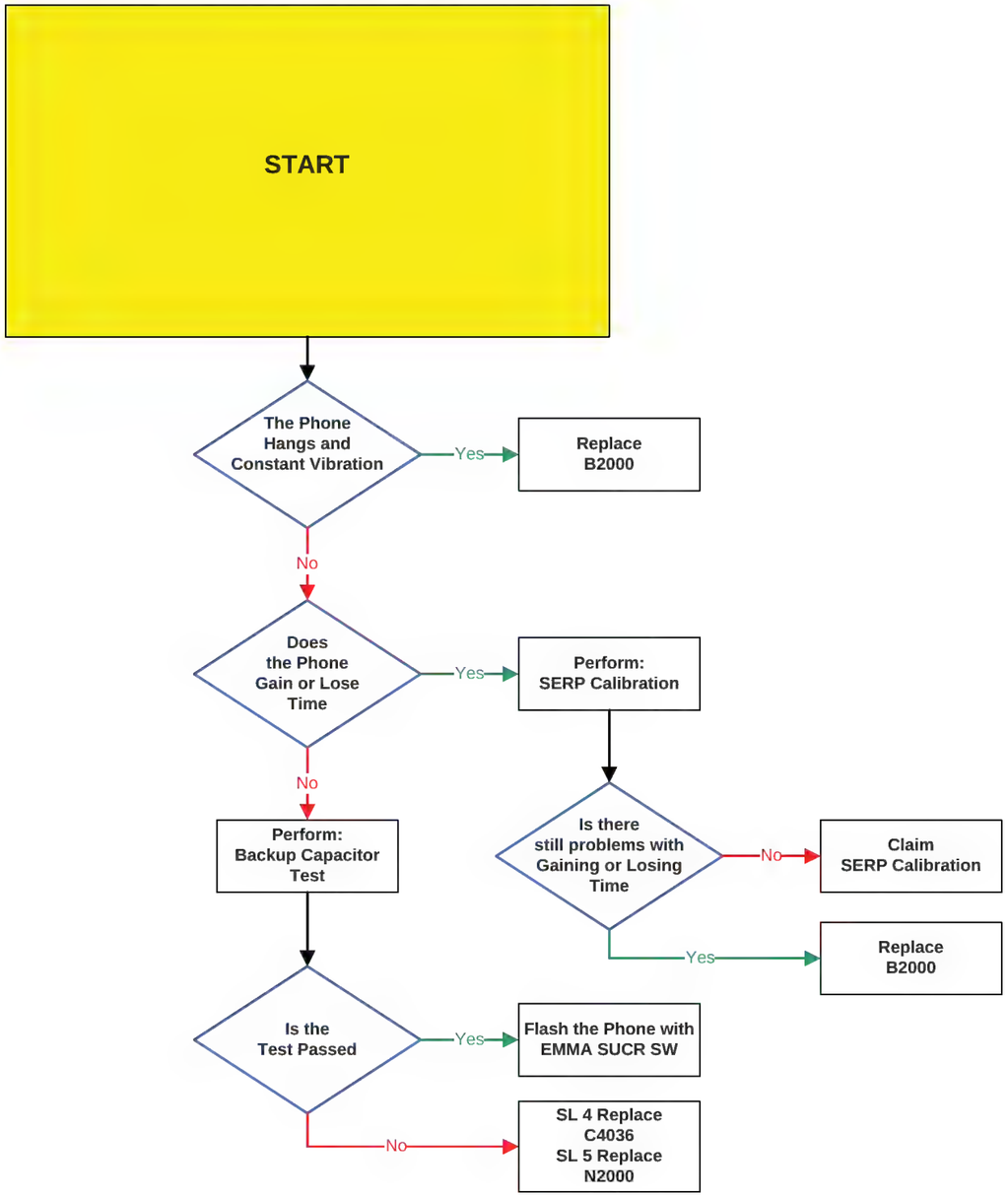
Accelerometer Problems


START
Step 1:
Load ETS SW into the Phone
Step 2:
Use Dummy Battery connected to the
Power Supply Channel 1 (VBATT)
Connect the USB and wait for the Phone to Start Up (Vibrating Sound)
Use Fault Trace SW
Fault Trace SW
MMI
Misc
Init Screen Testing
Activate:
Accelerometer Test
NOTE !
Read X, Y, Z information in the Info Box.
Move the Phone and
Repeat the:
Accelerometer Test
NOTE !
Read X, Y and Z information in the Info Box.
NOTE !
Repeat this Test Sequence 10 Times.
Can you see that X, Y and Z information are changing in the info box
Yes
Flash the Phone with EMMA SUCR SW
No
Use Fault Trace SW and go to:
1: General
Product data
Read All
2: General
Asic Revisions
Read All
Is the Accelerometer (N2800) Asic Revision 0x3b
Yes
SL 5 Replace N2500 or N2501 SL 4 Escalate
No
SL 4 Replace N2800 SL 5 Replace N2501

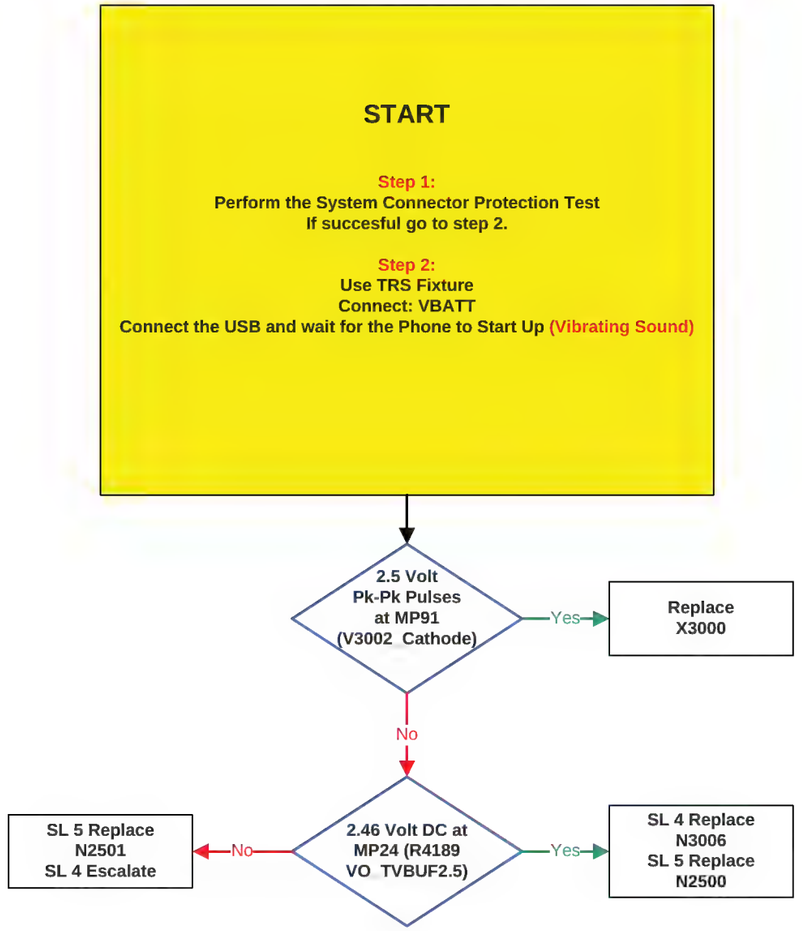
Vibrator Problems



Alert and Real Time Clock Problems



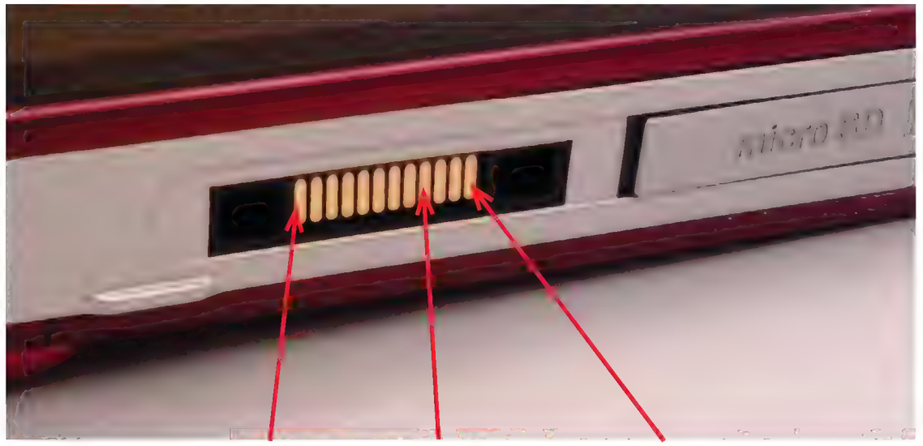
TV Out Problems



System Connector Protection Test

Perform the Ohm measurements by using the DMM instrument (Fluke).

Note! The Battery must be removed from the Phone during this test.
Note! Connect the Black probe to the X3000_PIN 9 (GND).



System Conn. X3000 (PIN Position)	Ohm Measurements (Ohm)	SL 4 (Repair Action)	SL 5 (Repair Action)
1	1.2M	X3000 if higher C3011 if lower N3005 if lower	No Action
2	0	X3000 if higher L3001 if higher	No Action
3	12k – 15k	X3000 if higher L3000 if higher N5502 if lower or higher	C3006 if lower
4	950 – 1.2k	X3000 if higher L3002 if higher N5502 if lower or higher	C3007 if lower
5	450k - 515k	X3000 if higher L3003 if higher C3004 if lower N5502 if lower or higher	C3004 if lower C3022 if lower
6	450k - 515k	X3000 if higher L3004 if higher N5502 if lower or higher	C3005 if lower C3021 if lower
7	500k – 1M	X3000 if higher V3002 if lower N3006 if higher or lower	R3035 if higher
8	500k – 560k	X3000 if higher V3001 if lower N3000 if lower or higher	R3007 if higher R3009 if higher
9	**GND**	X3000 if higher	No Action
10	600k – 1.3M	X3000 if higher Z3000 if higher N3002 if higher or lower	C3009 if lower
11	600k – 0L	X3000 if higher Z3000 if higher N3002 if higher or lower	C3009 if lower
12	70k – 110k	X3000 if higher C3013 if lower V4001 if lower	C3020 if lower C4041 if lower N2000 if lower or higher

Backup Capacitor Test

To perform this test use:

- Phone with the ETS SW
- Power Supply Channel 1 VBATT: Instrument settings: Voltage: 3.8V, Limiter: 2A
- USB
- Fault Trace SW

This test should be performed in 3 steps:

Step1:

Use Fault Trace SW and go to: Logic - ADC Values – Read ADC Value (**Reading 1**).

Step2:

This step should be made **30 seconds** after Step 1.

Use Fault Trace SW and go to: Logic - ADC Values – Read ADC Value (**Reading 2**).

Step3:

Compare the difference between **Reading 1** and **Reading 2** with the reference table below. If the Reading 1 value is between 50 and 680 go to Interval 1, if between 681 and 800 go to Interval 2, if between 801 and 880 go to Interval 3 and compare with the **Reading 2** – **Reading 1** Min and Max Limits.

Reference Table:

	Min	Max	Unit
Absolute readout Reading 1	50	880	Dec

Reading 1 (Dec)	Reading 2 – Reading 1 (Dec)	
	Min	Max
Interval 1 (50 – 680)	20	210
Interval 2 (681 – 800)	5	30
Interval 3 (801 – 880)	0	15

Note! The upper table contains the absolute limits for the readouts. The lower table contains the allowed delta between the first and the second readout, separated in time with 30 seconds.

Note! If the readings is out of limits then **Replace C4036** (Backup Capacitor). If still problems then **SL 5 Replace N2000 SL 4 Escalate**.

Display Filter Test

This Test must be made for all Display Filters below:

Z2500, Z2501, Z2502, Z2503, Z2504, Z2505, Z2506 and Z2507

To perform this test use:

- Digital Multimeter instrument (DMM) and Microscope
- Use the Measurement Points Drawing to find the locations of the Display Filter components.

Display Filter Test 1:

Check if the any of the Pins: 1, 2, 3, 4, 5, 6, 7, 8 is short circuit to **GND**:

If Yes Replace the Faulty Display Filter Component.

If No go to Display Filter Test 2.

Display Filter Test 2:

Is the resistance max 12 Ohm between the following pins:

Pin 1 and 5

Pin 2 and 6

Pin 3 and 7

Pin 4 and 8

If No Replace the Faulty Display Filter Component.

If Yes go back to the Display Problems TRS Guide.

ASIC Revision Test

Note! The Key Test must be deactivated during this test.

The purpose of this test is to verify:

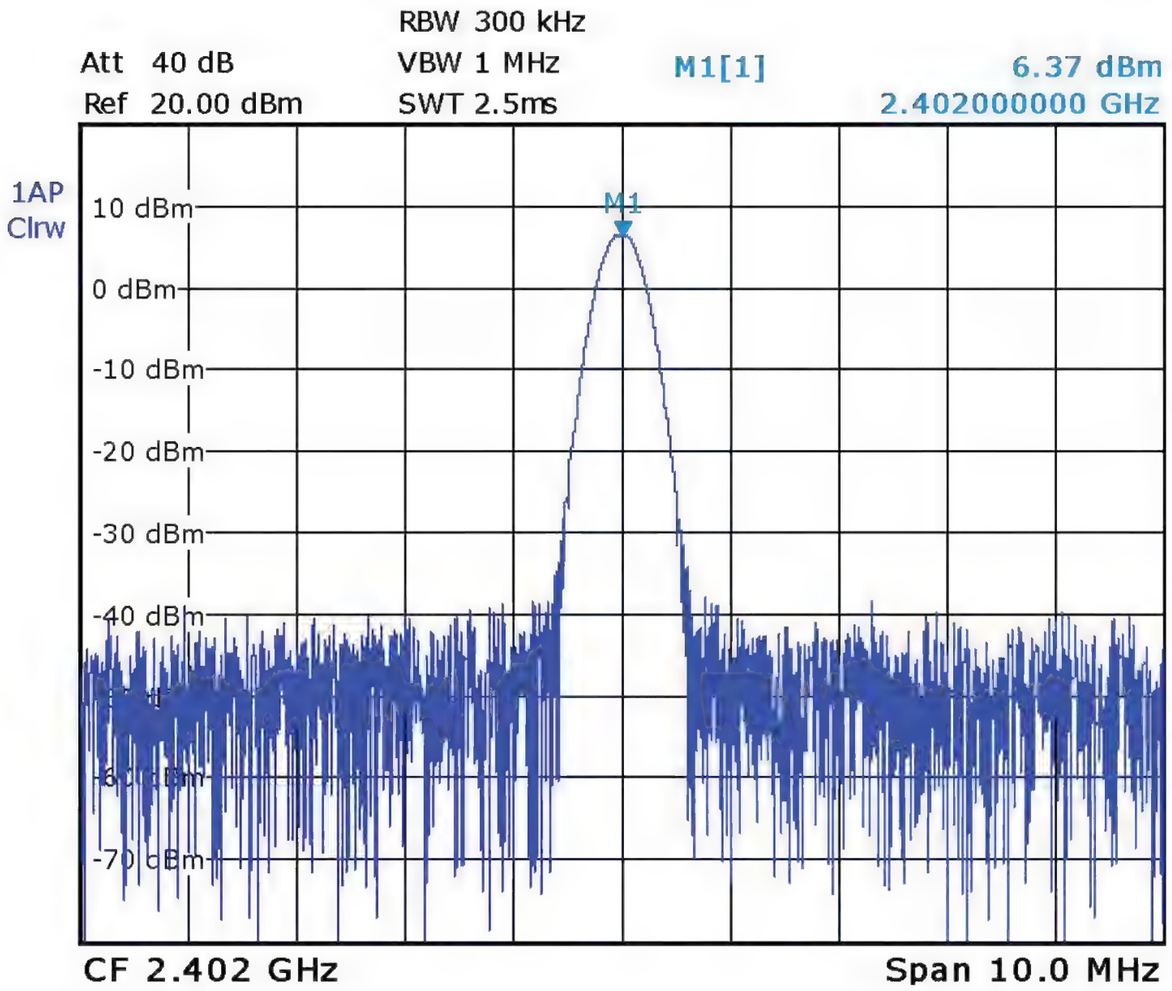
- That the ASIC is correctly mounted,
- That communication is ok,
- That the ASIC revision is correct.

To perform this test use:

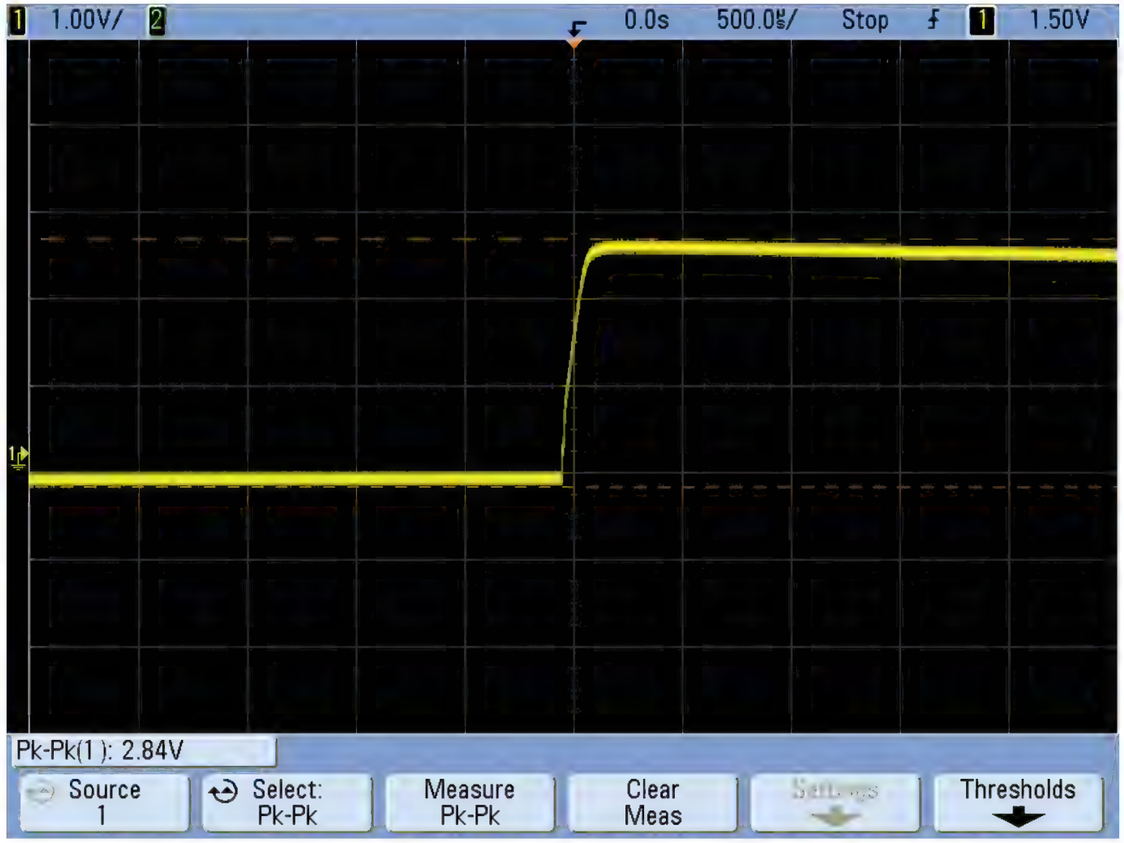
- Phone with the ETS SW
- TRS Fixture
- Power Supply Channel 1 VBATT (Voltage: 3.8V, Limiter: 2A)
- USB
- Use Fault Trace SW and go to: General – Asic Revisions – Read All

Reference Table:

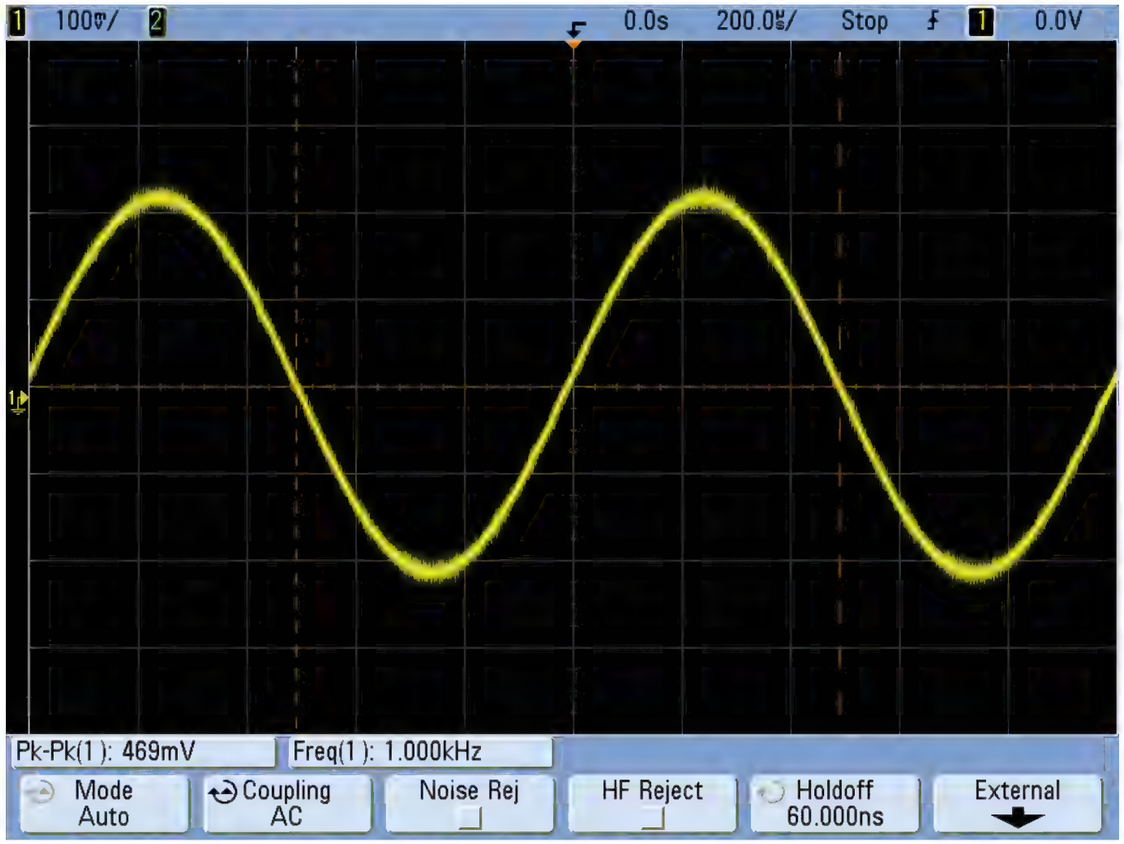
ASIC	Part Number	Description	Return Value
N2010	1223-3567	Kajsa	0xE9
N2000	1208-9490	Vera	0xC8
N2500	1203-8903	OMAP	OMAP3430 ES 3.1
N2501	1209-9654	Gaia	TWL5030 ES 1.1
N1400	1219-6481	Bluetooth	0x1D,0x1F
N2800	1202-1676	Accelerometer	0x3b
N1500	1201-7557	A-GPS	0,0,0,0,0,0,2,9,1,0
N1400	1219-6481	FM Radio	0x1273



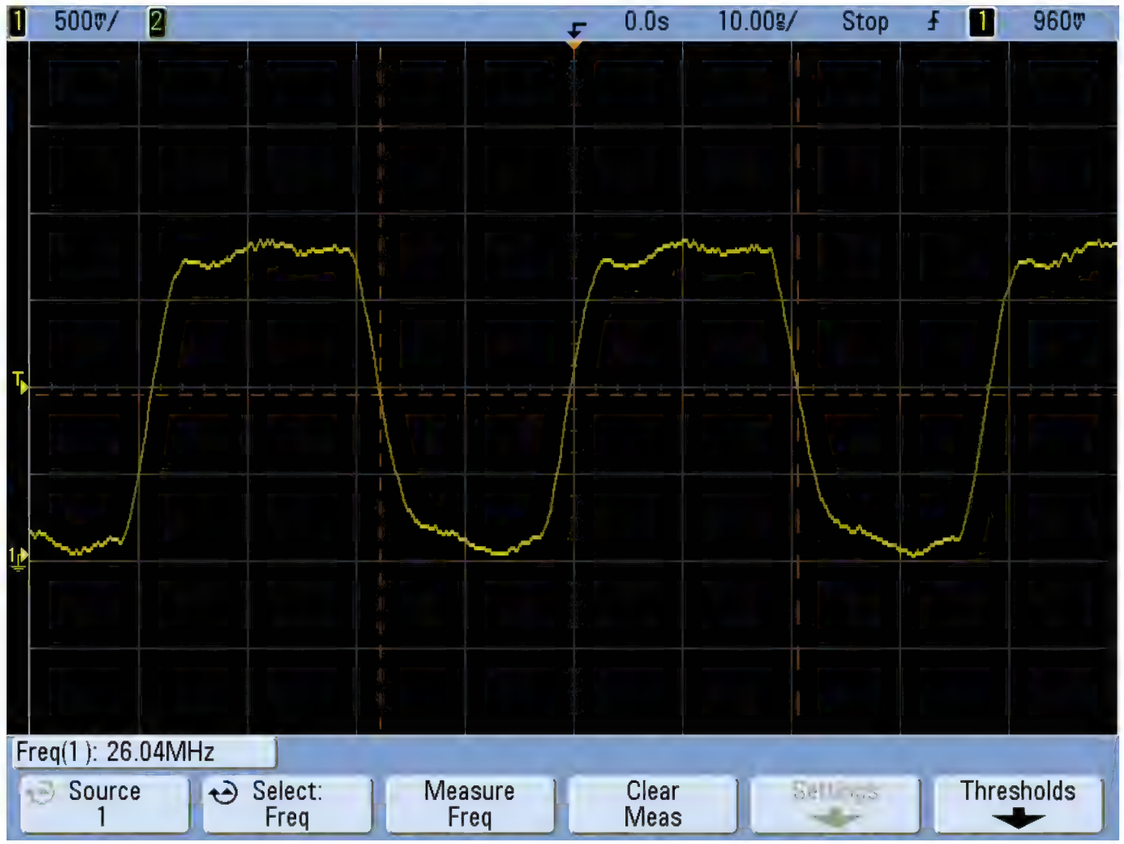
Blt MaxPwr



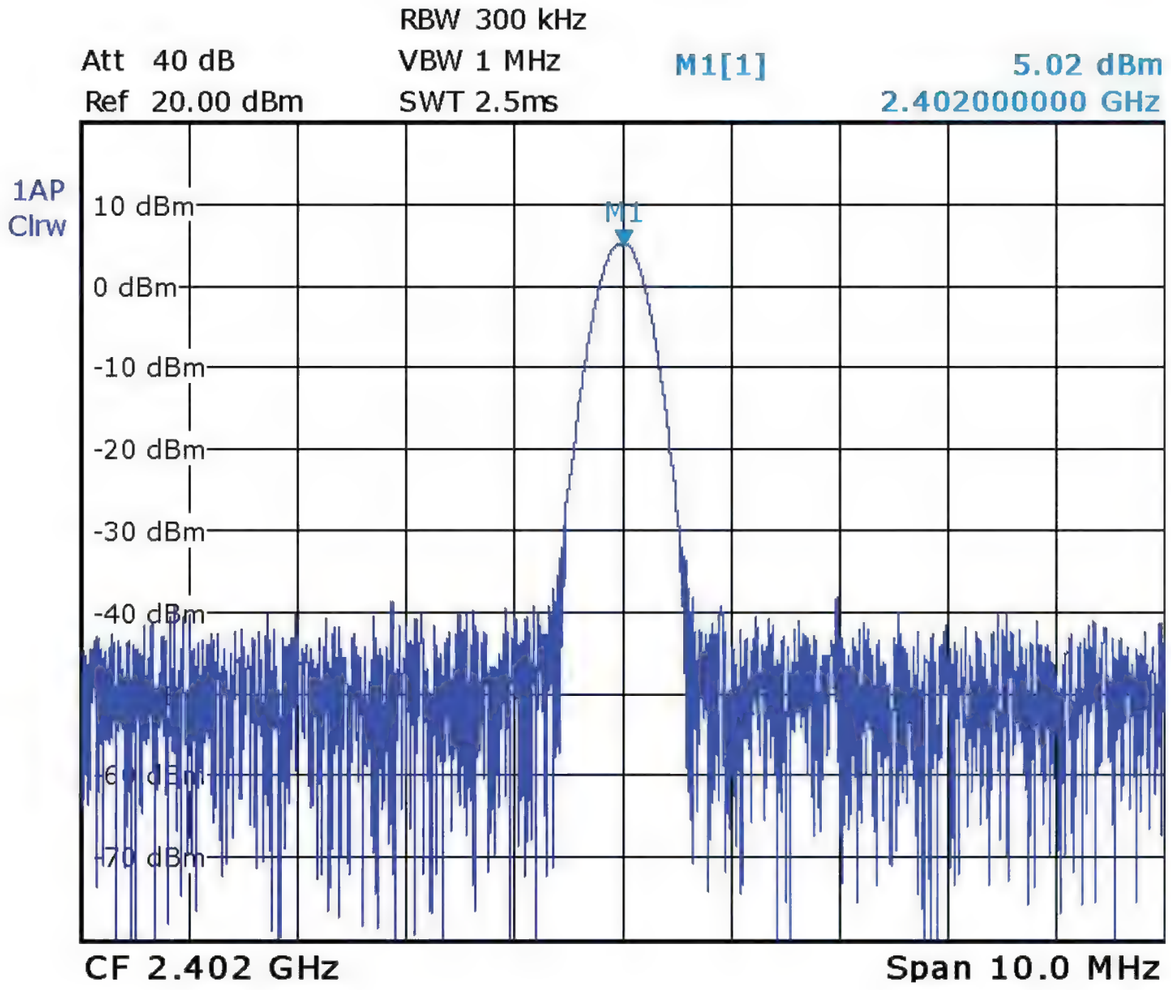
MP R4048 (VIBR_OUT)



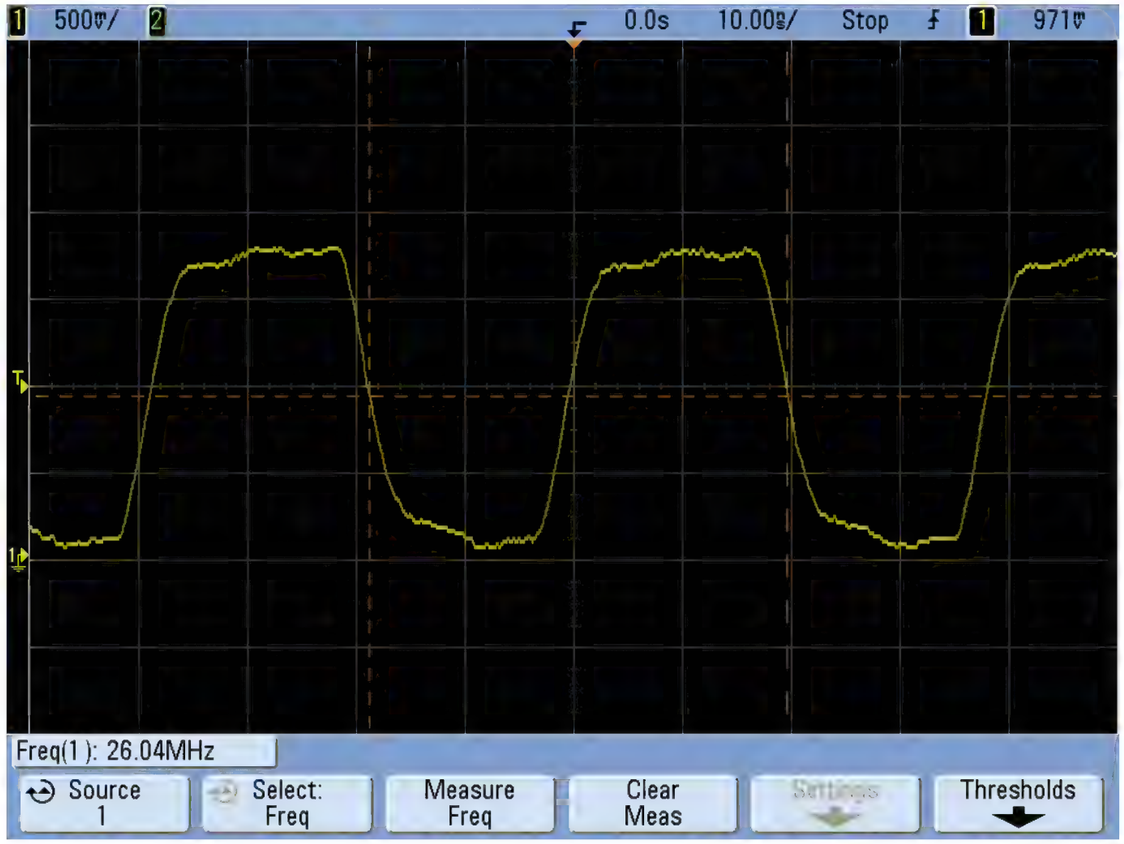
MP19 C5524 and MP 21 C5523



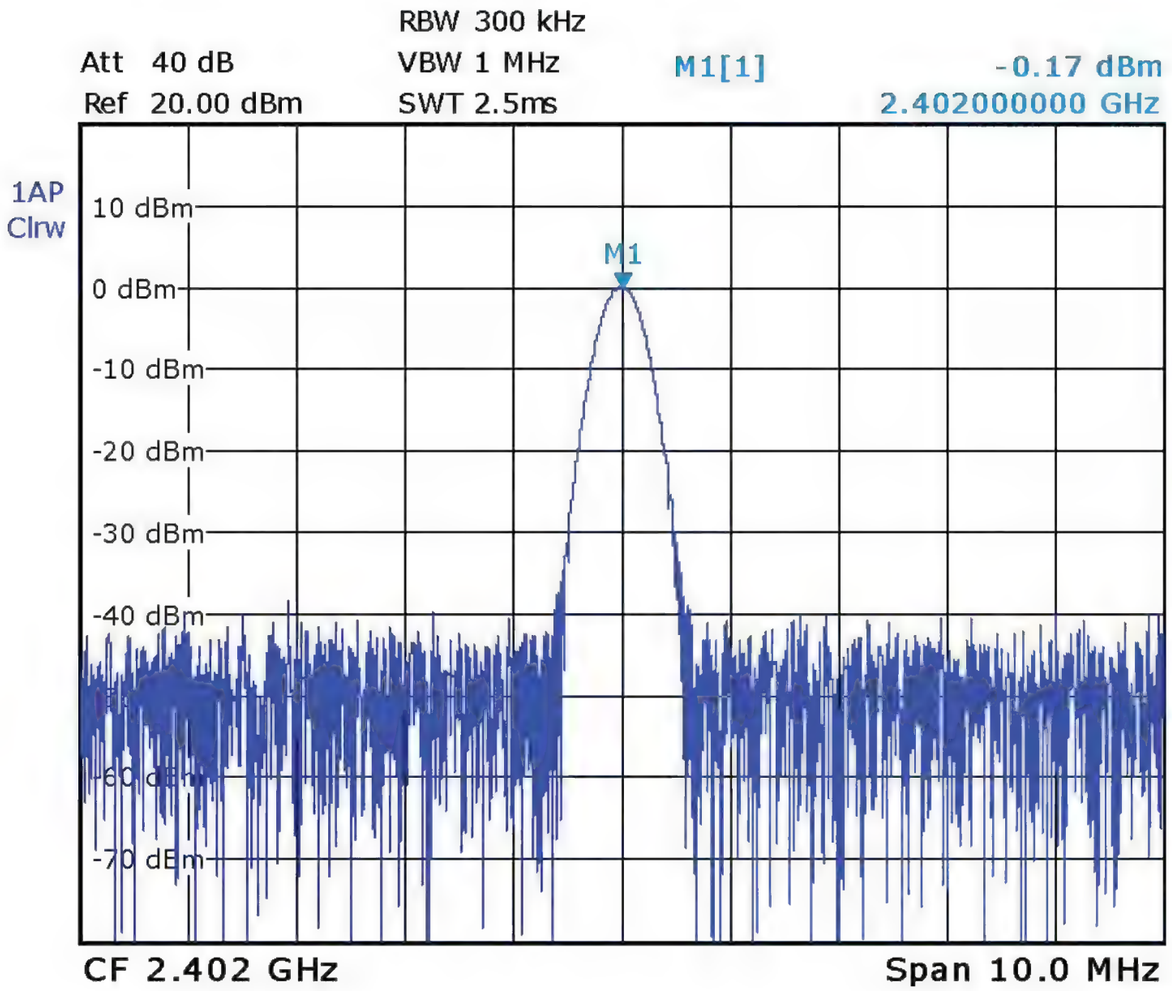
MP23 R2514 (26MHz MCLK_2)



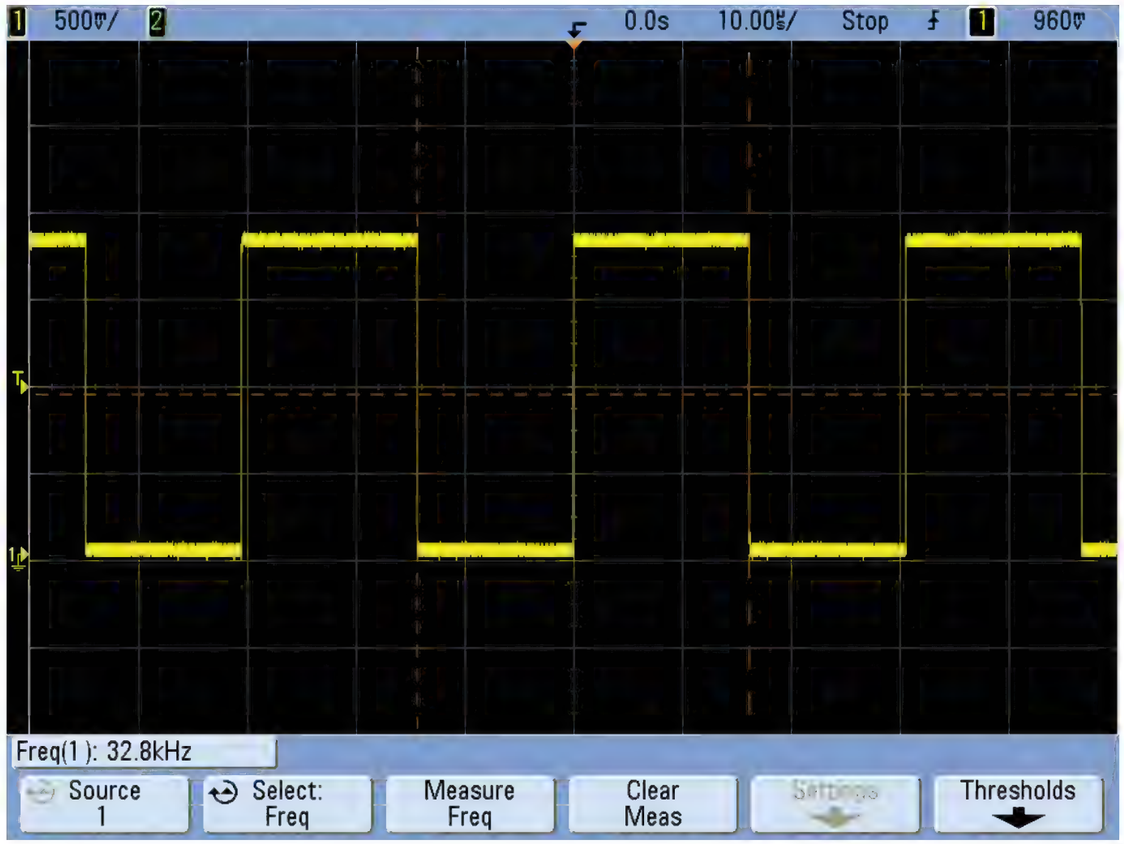
MP32 R1460



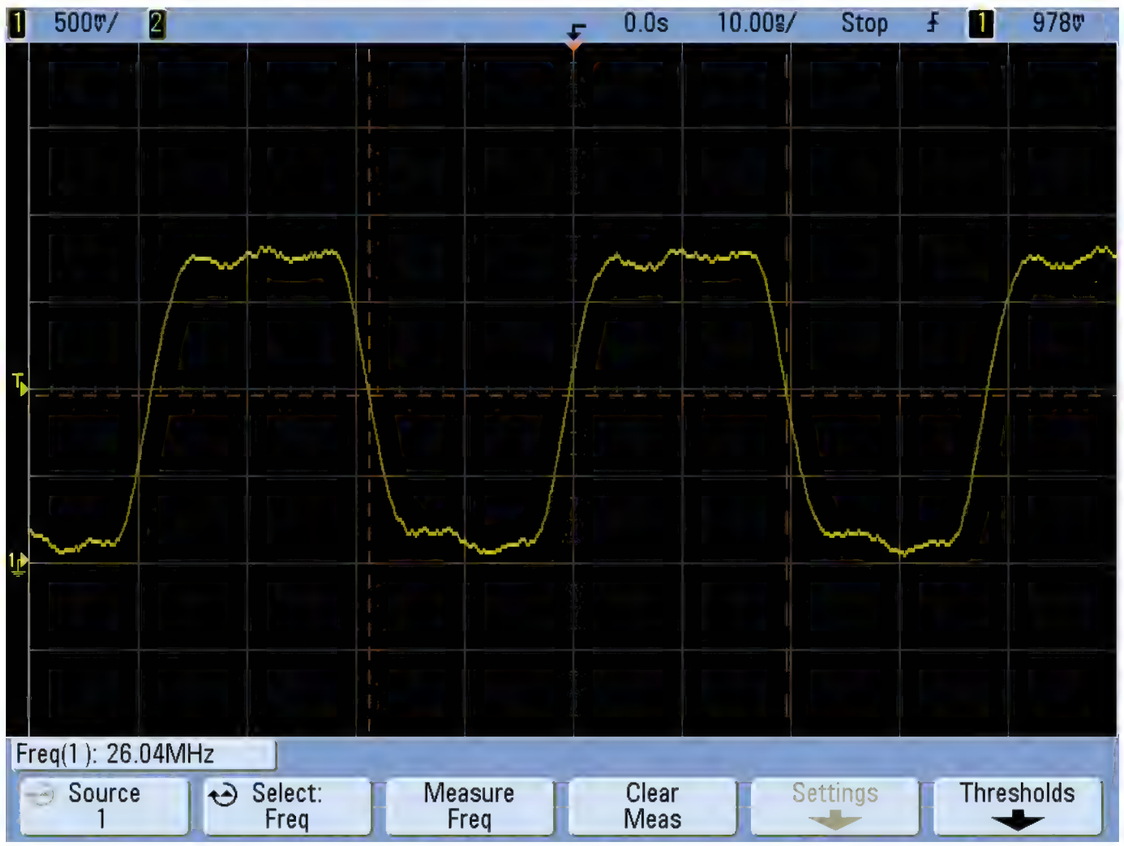
MP33 R1457 (26M_CLK1)



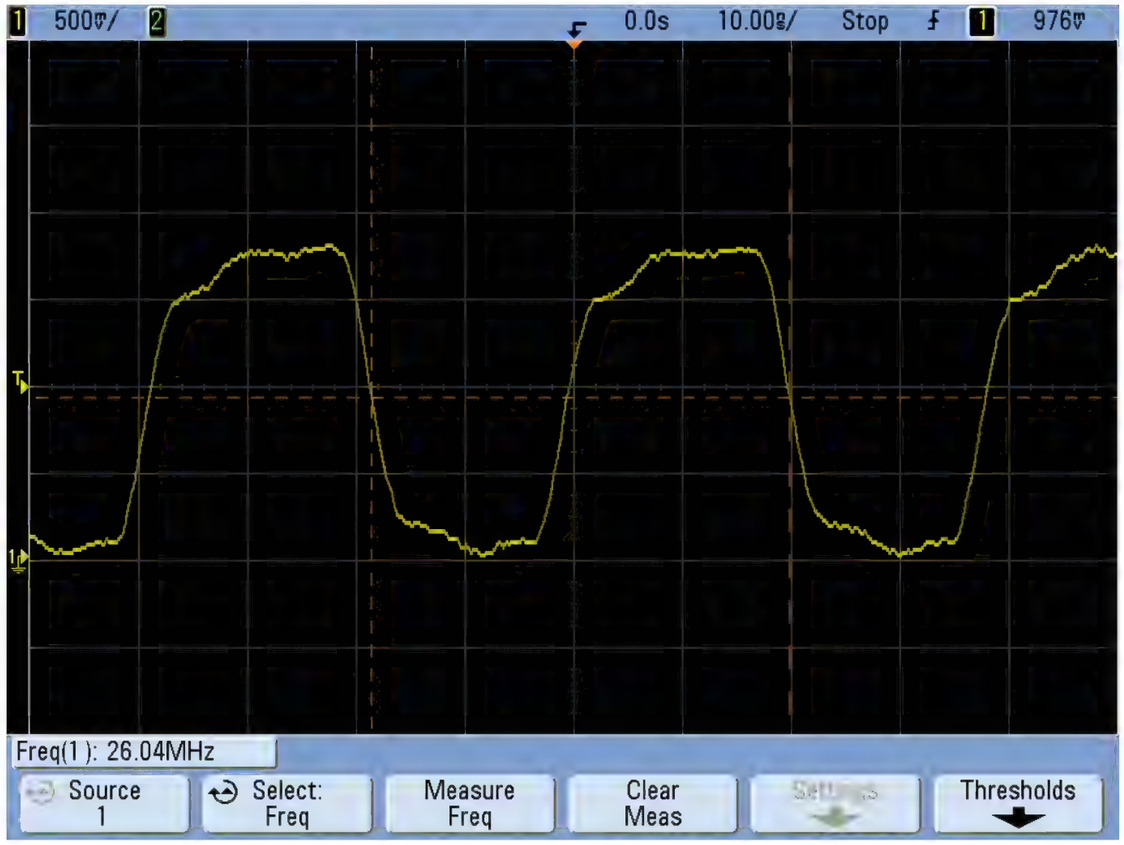
MP34 R1423



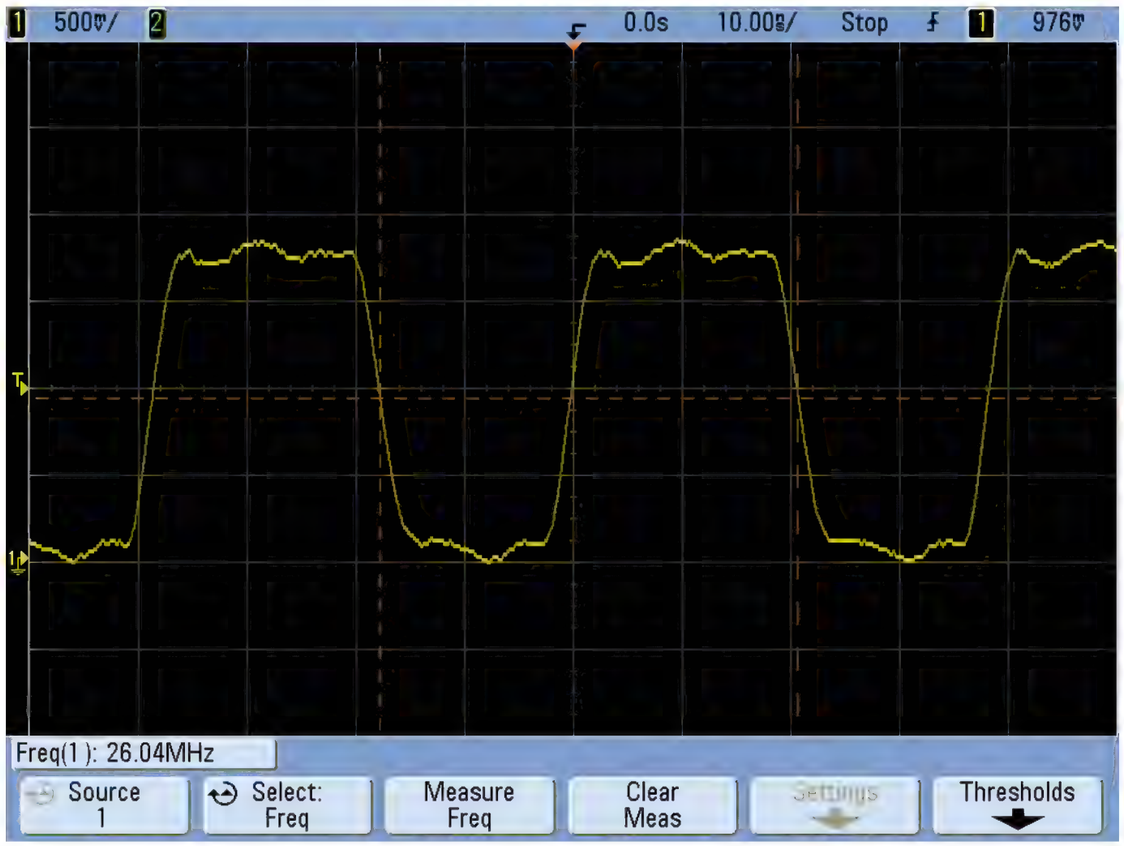
MP40 R2006 (32kHz RTCCLK)



MP43 R2008 (26M_CLK2)

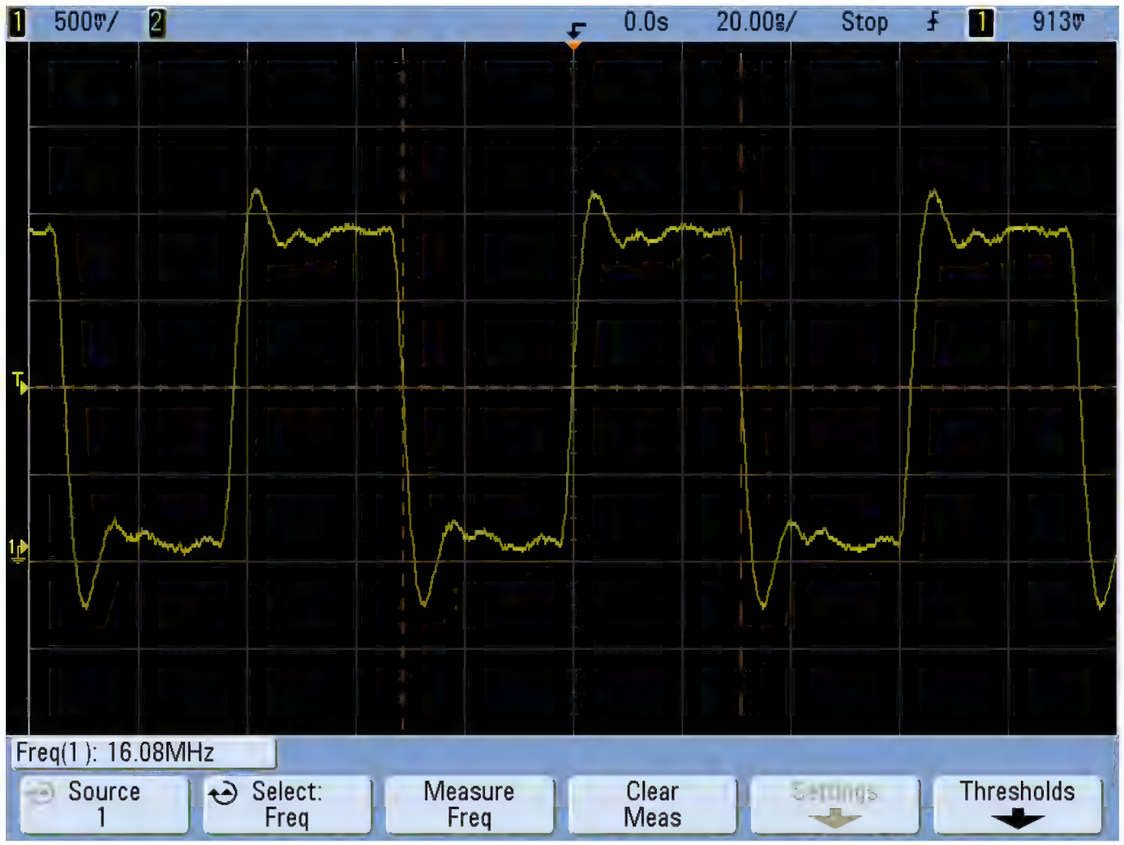


MP44 R2005 (26MHz MCLK)

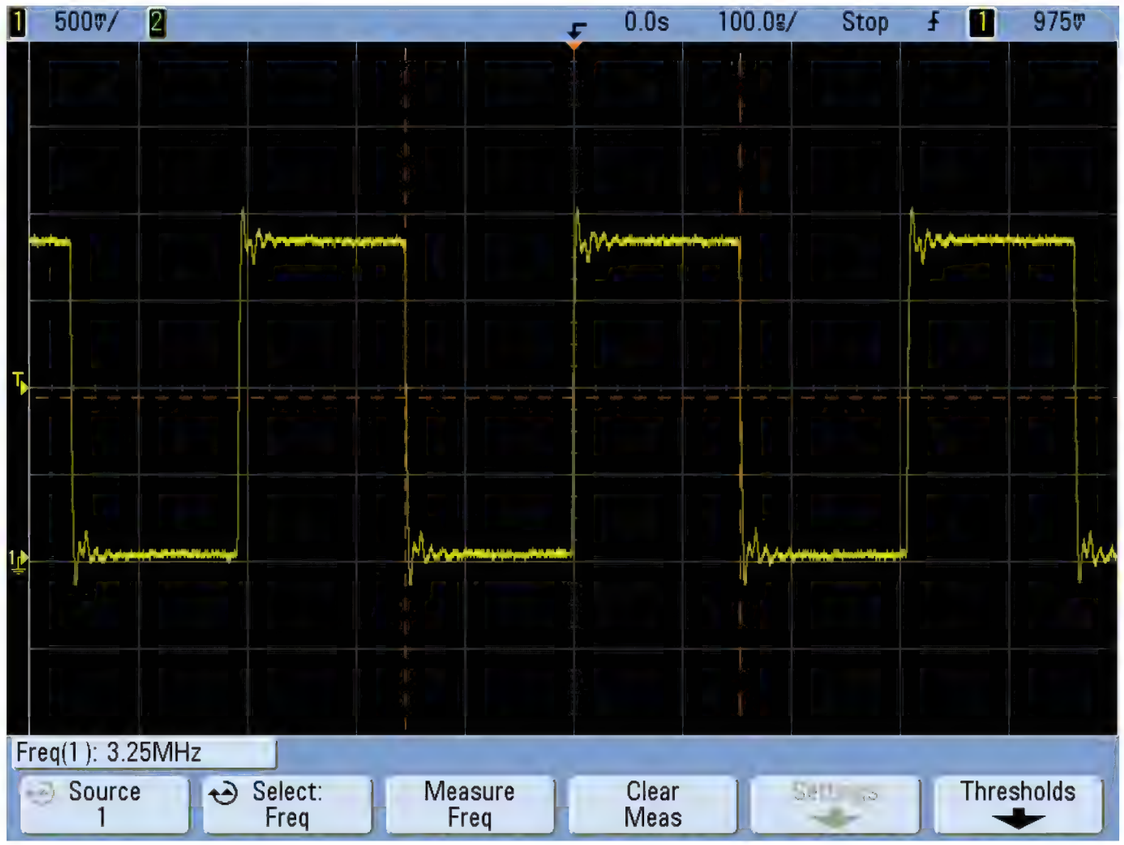


MP45 R2013 (26MHz MCLK_1)

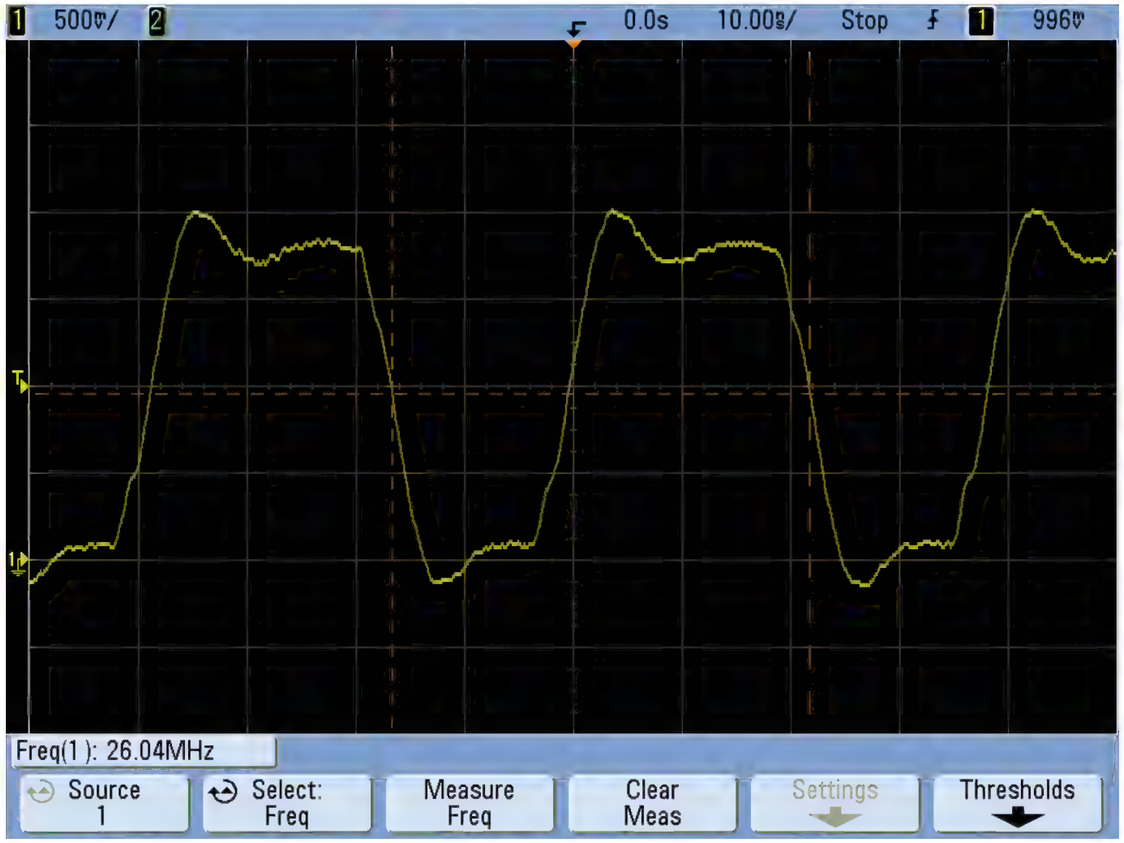
MP55 L2824 (4.5MHz CAM_CLKI)



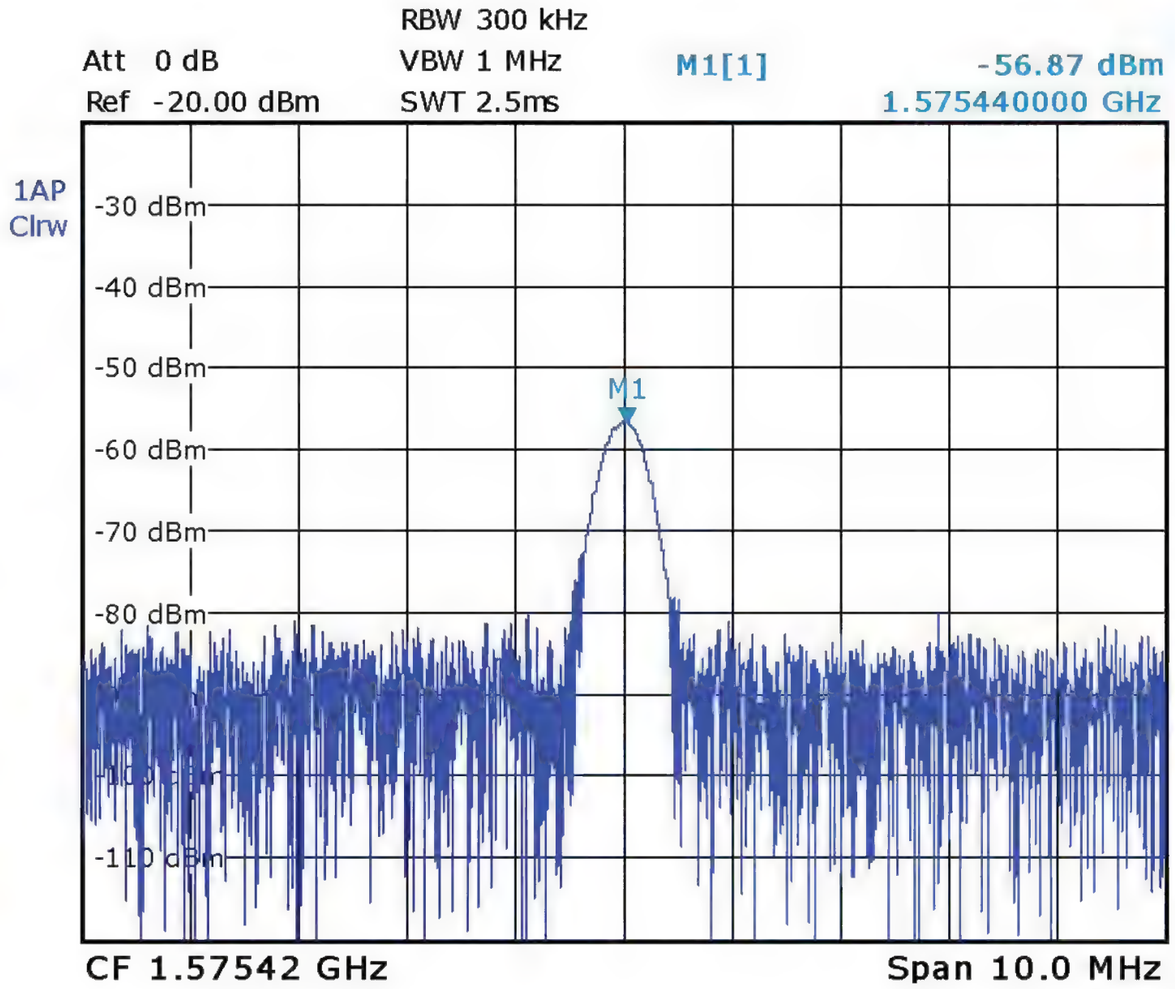
MP55 L2824 (CAM_CLKI)



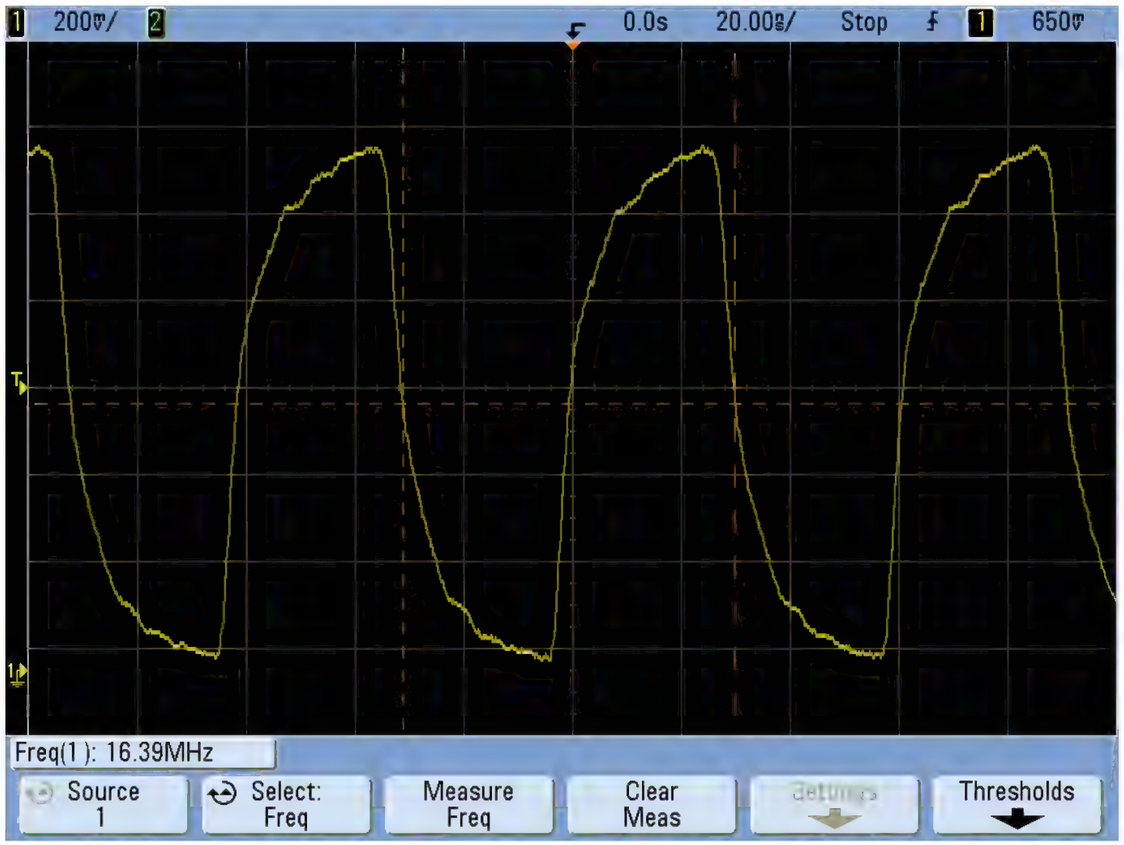
MP57 R2801 (3.2MHz LCDC_CLKO)



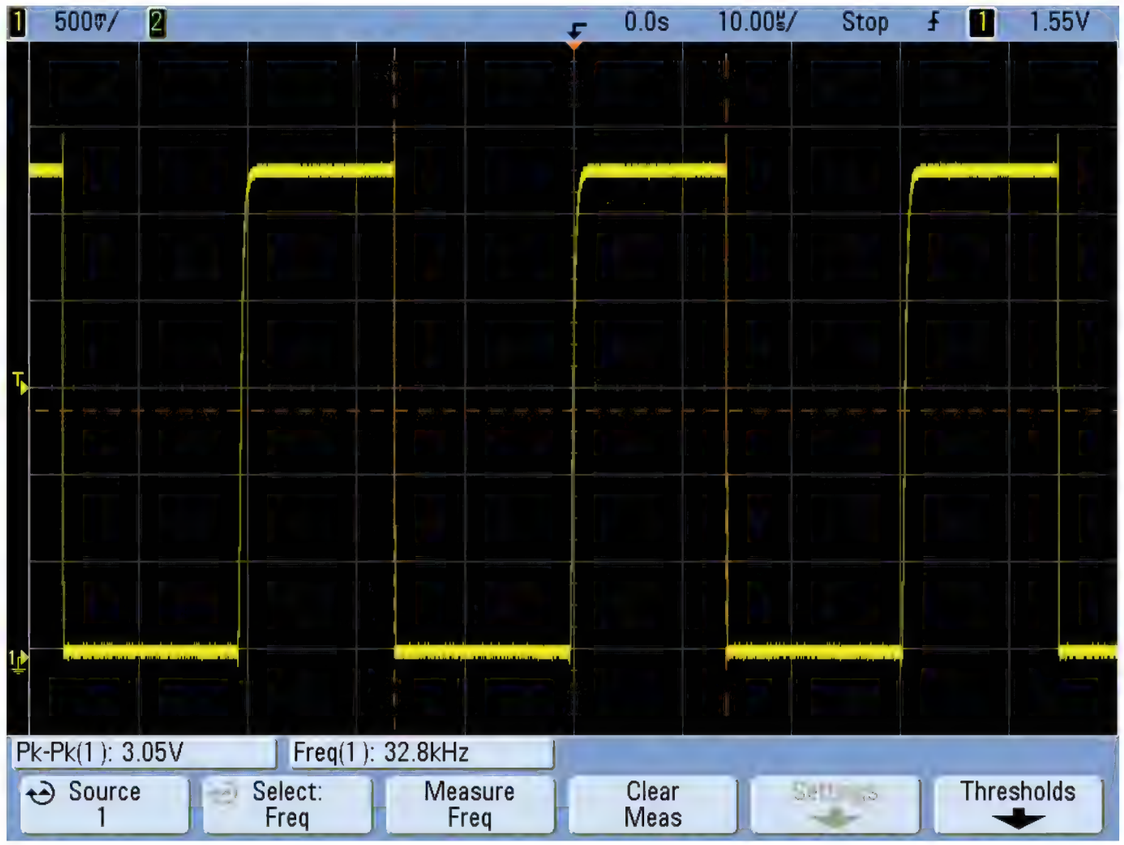
MP58 R2804 (MAIN_CAM_CLKO)



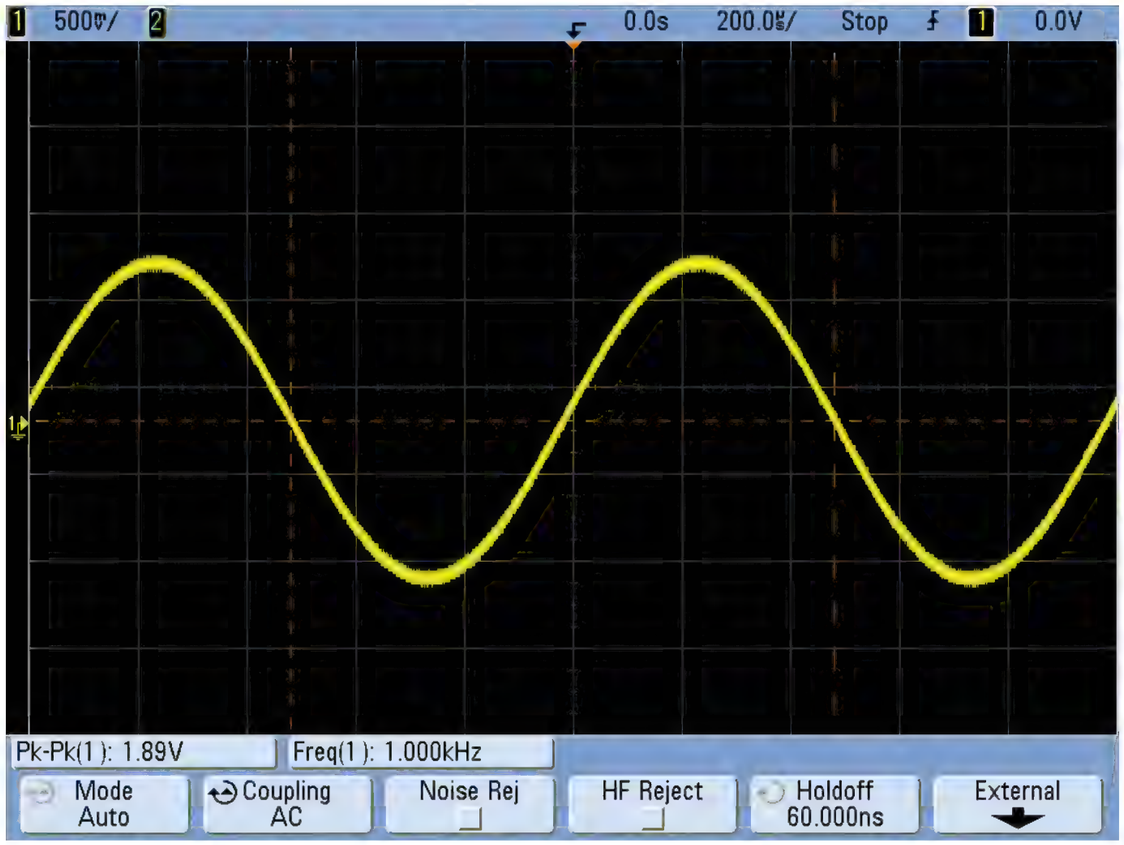
MP66 C1502



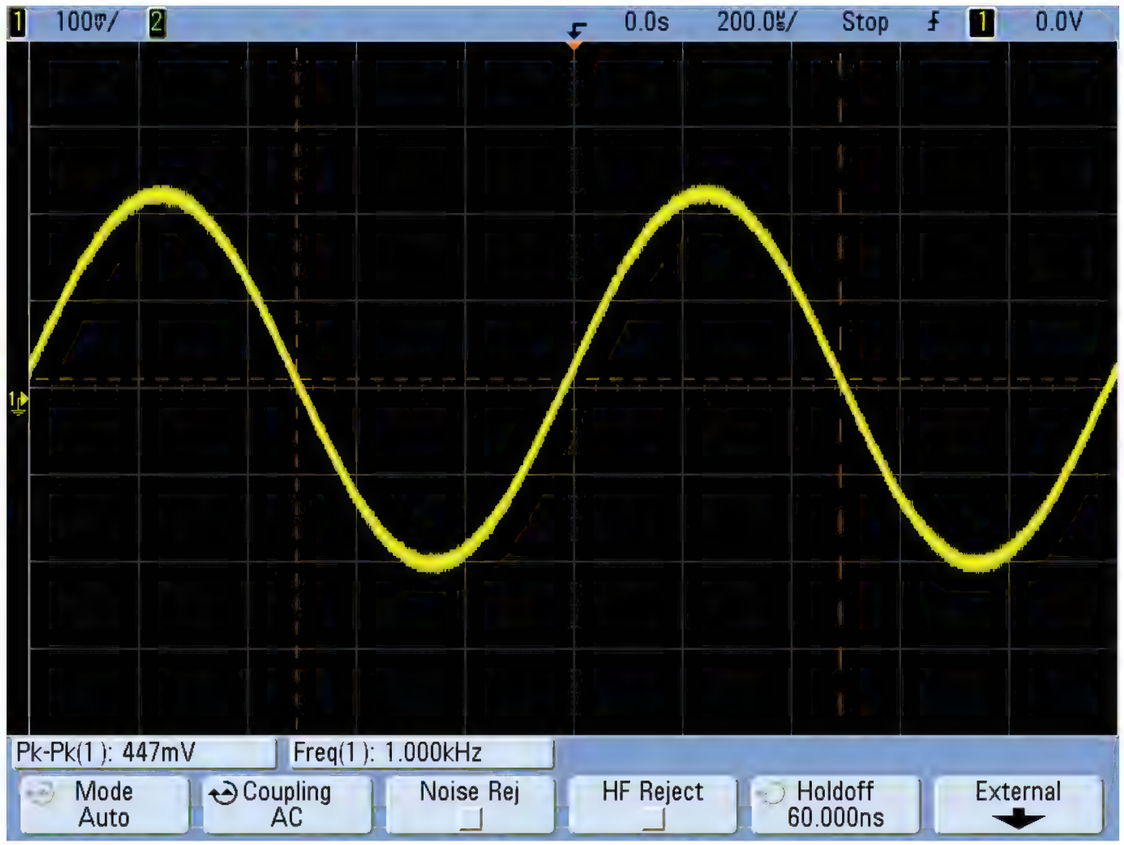
MP67 B1500_Pin 4 (TCXO_CLK)



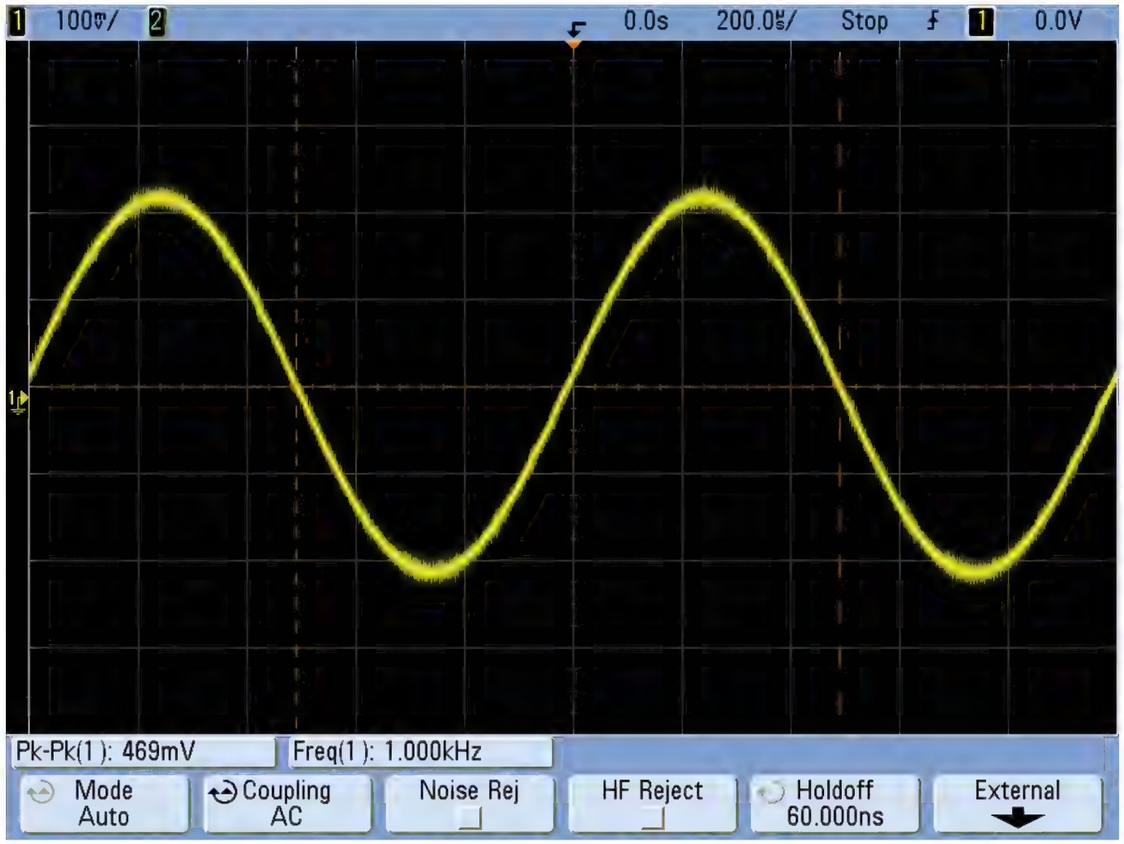
MP73 V2804 (PS_LEDON)



MP75 TP5504 and MP76 TP5505



MP81 R5522 and MP82 R5500



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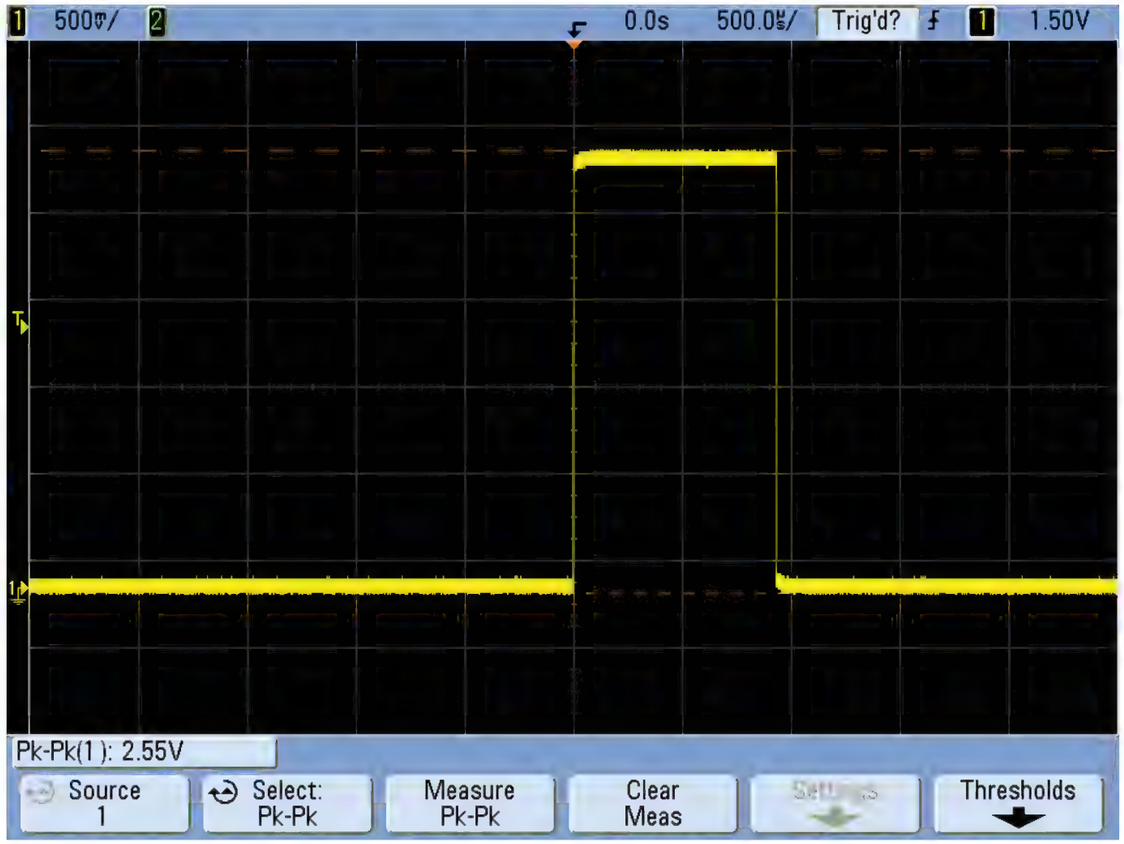
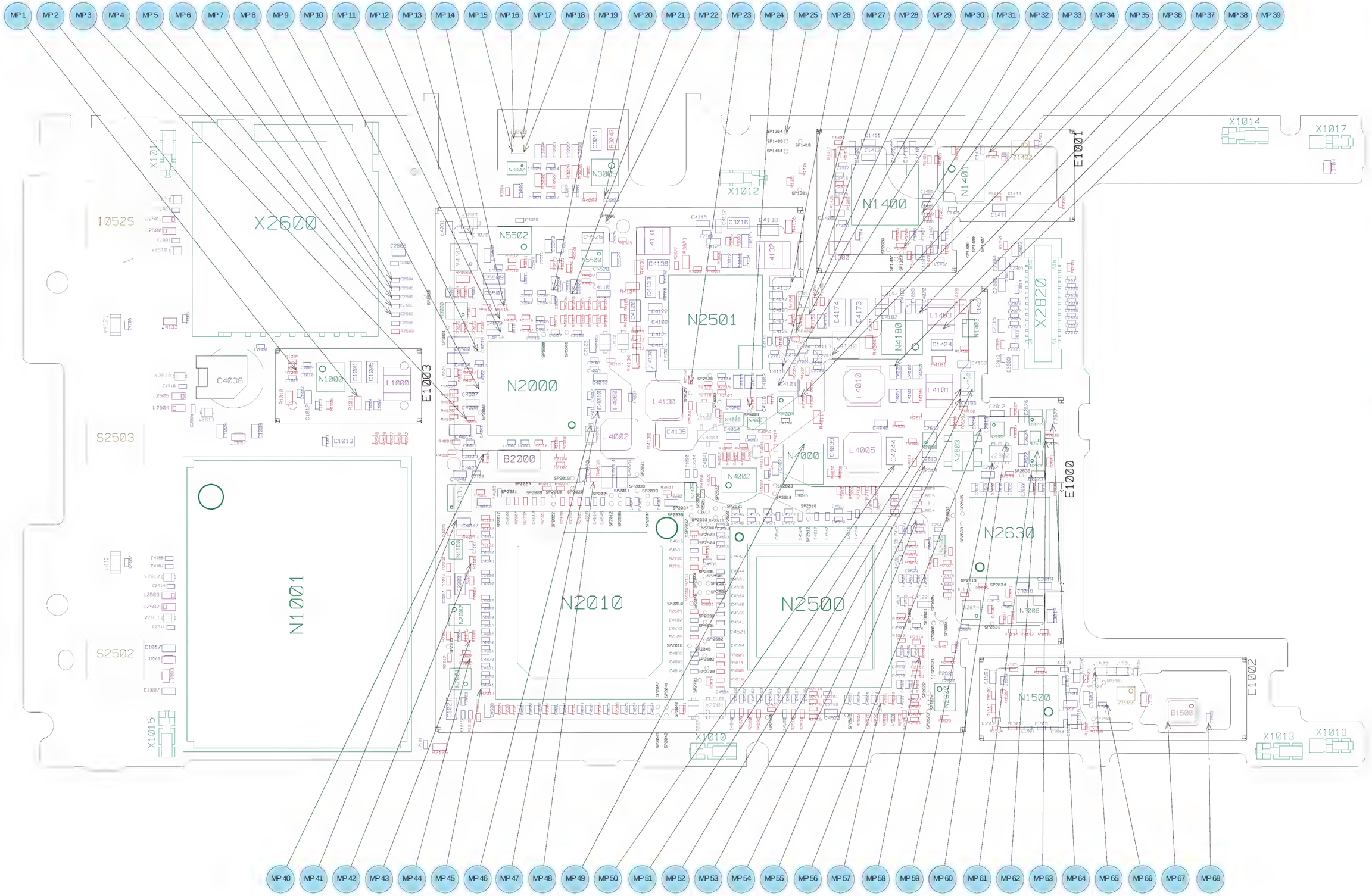


MP91 V3002_Cathode (TV_OUT_BUF)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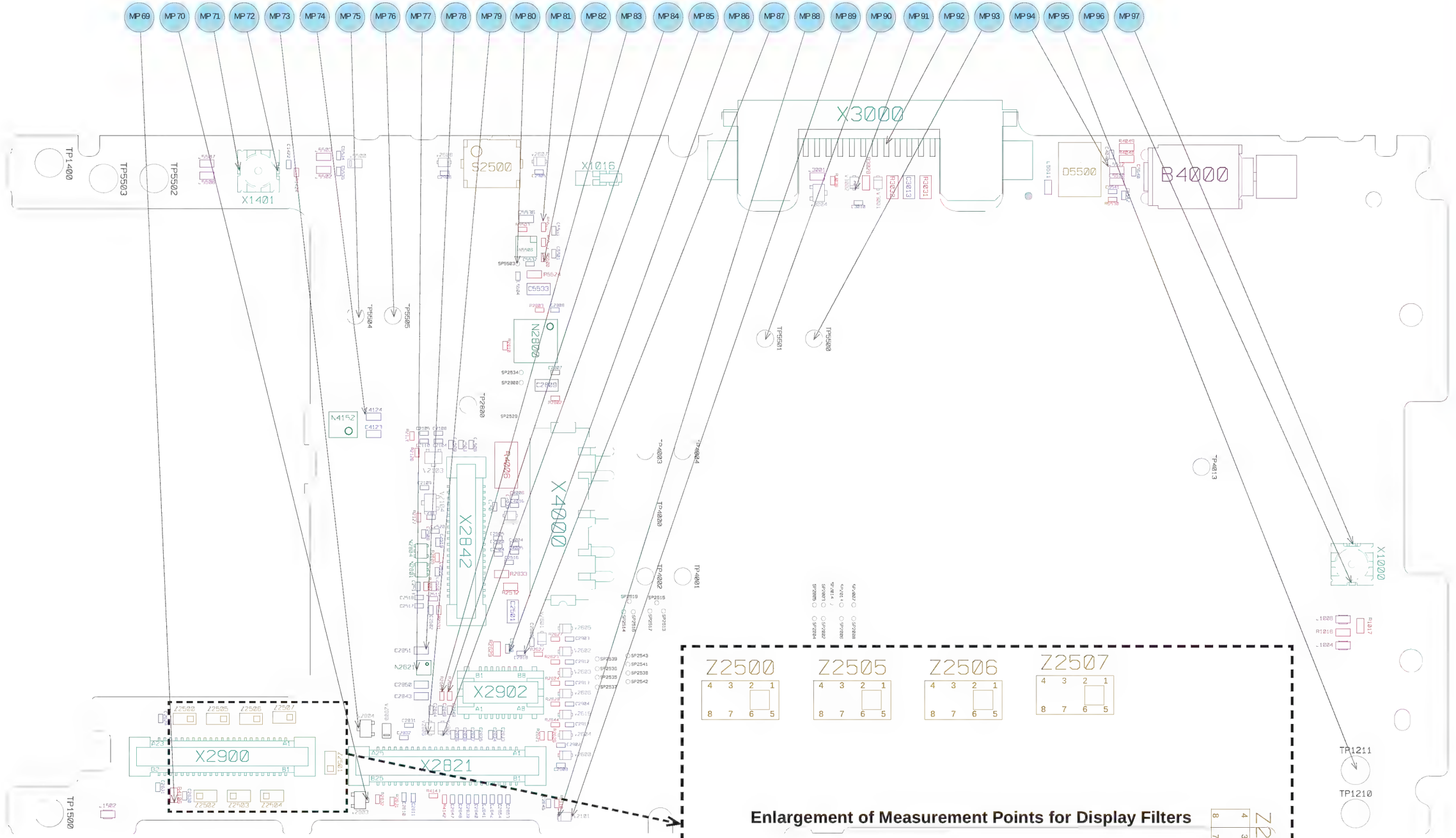
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MP 97
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B4000
D5500
X1016
X1401
X2842
X4000
X2902
X2900
X2821
X1000
TP1400
TP5503
TP5502
TP1500
TP1211
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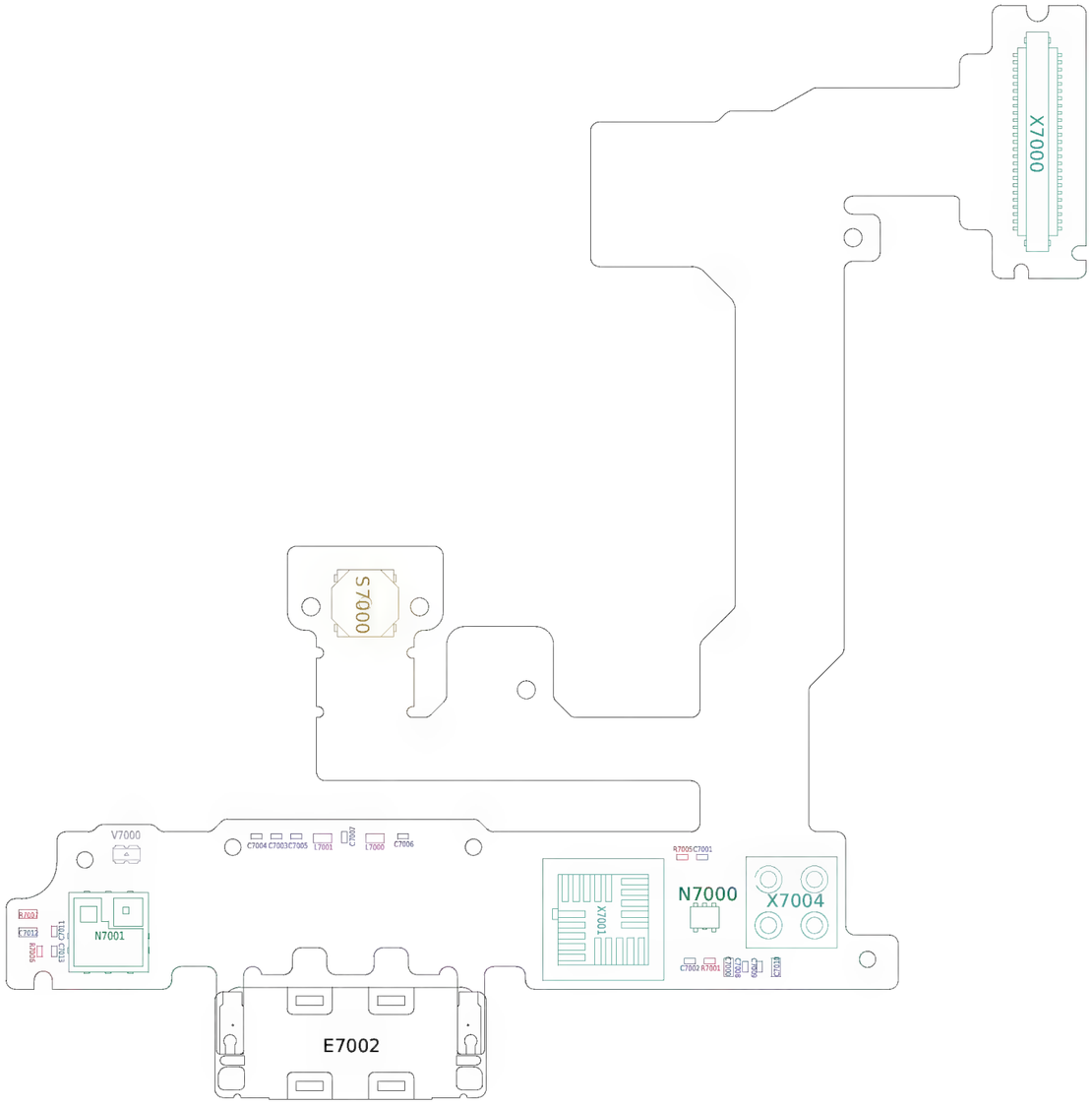
Z2502
Z2503
Z2504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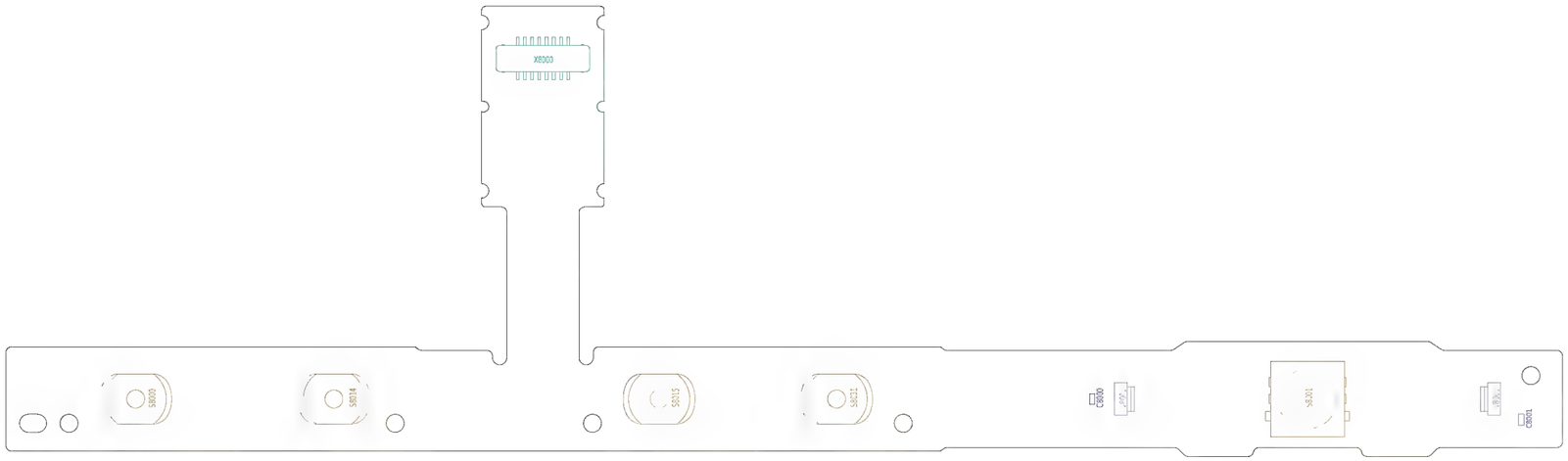
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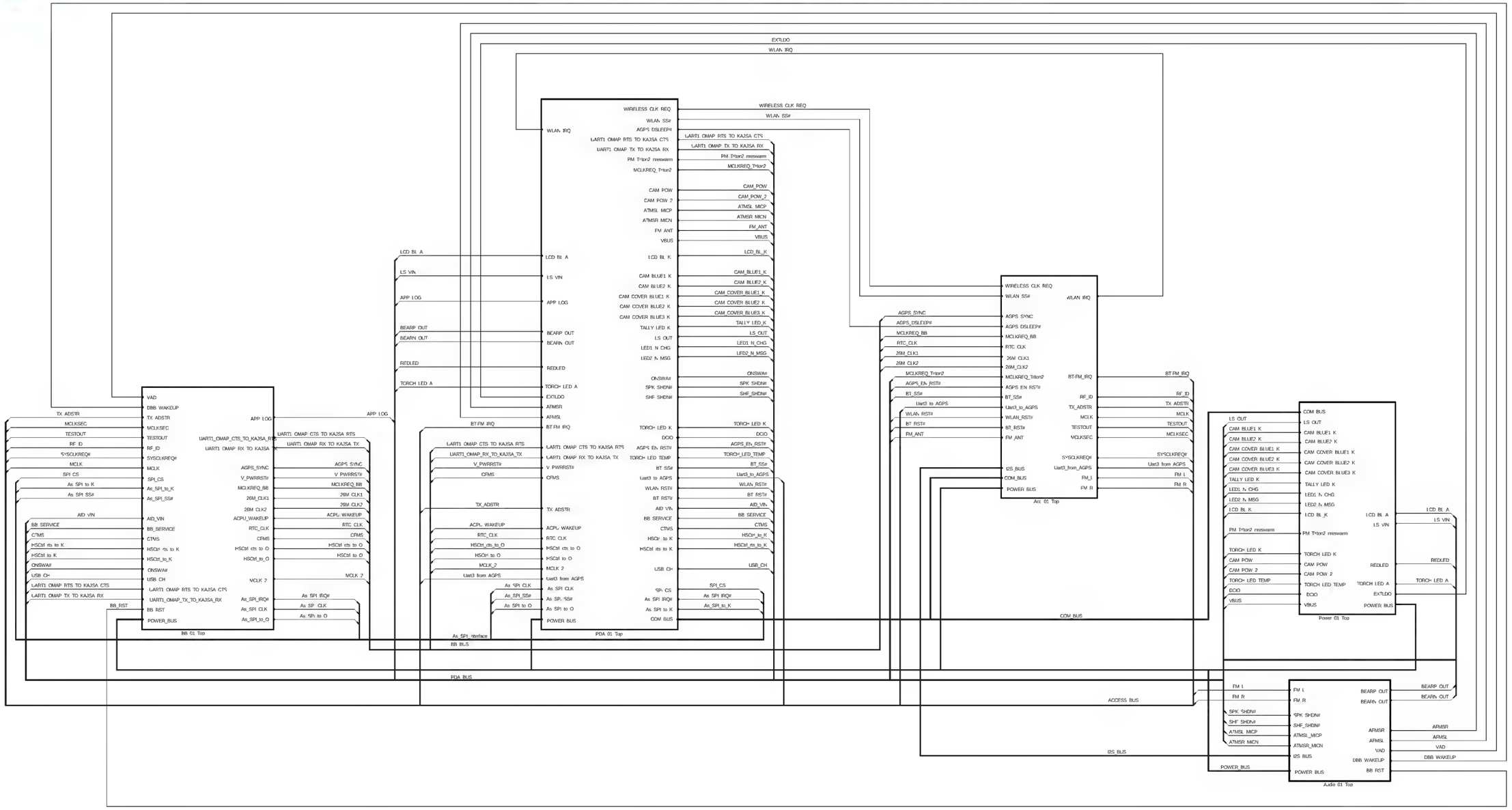

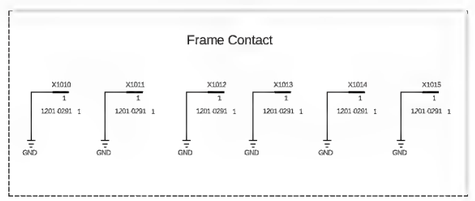

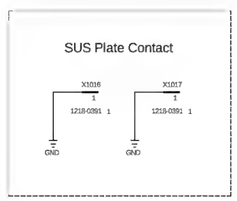

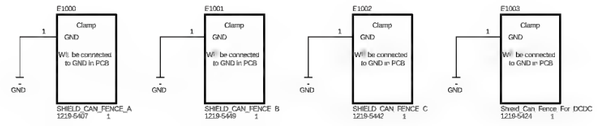

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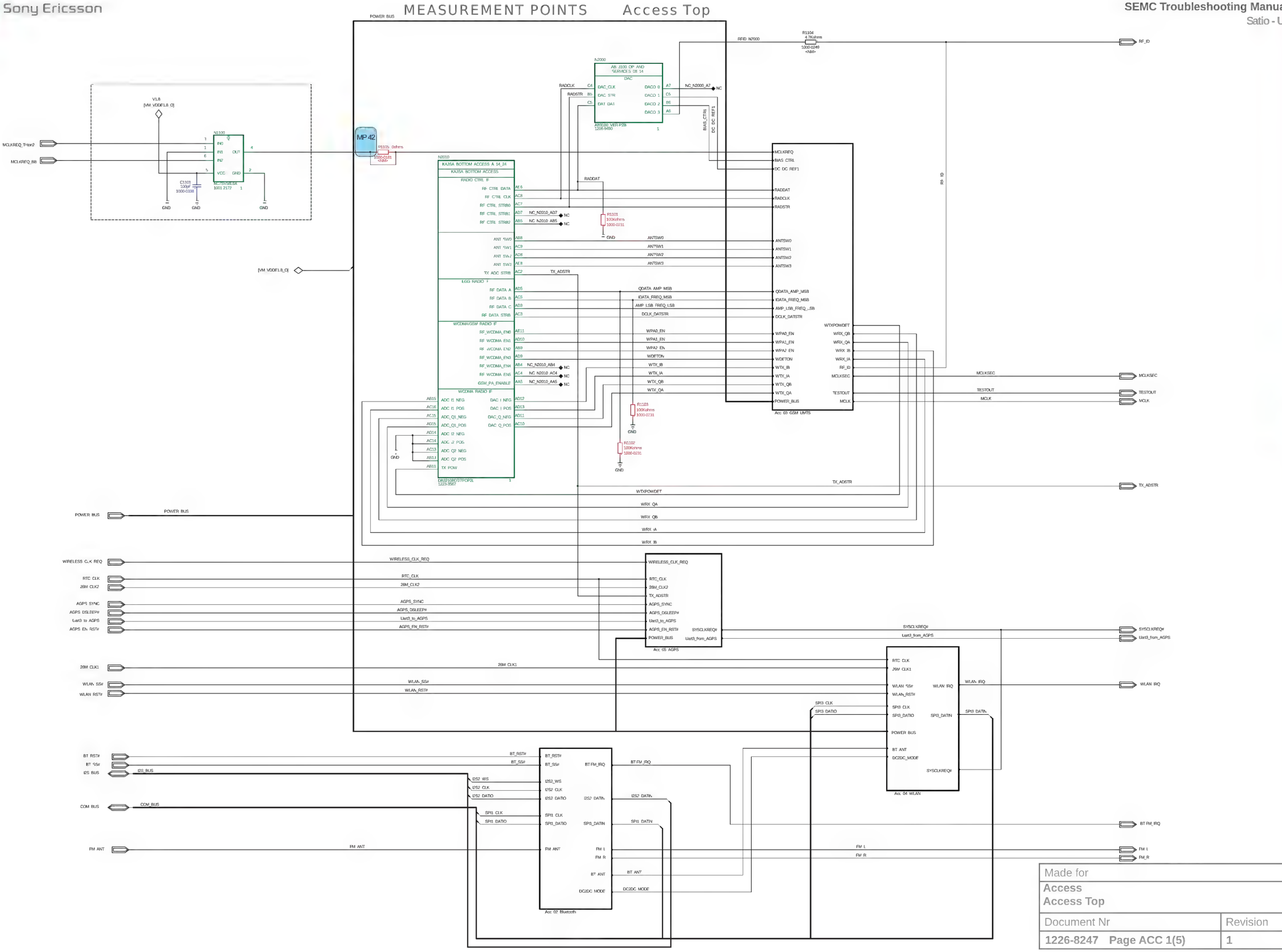
Top Schematic & Interface	
Document Nr	Revision
1226-8247 Page TOP 1	1



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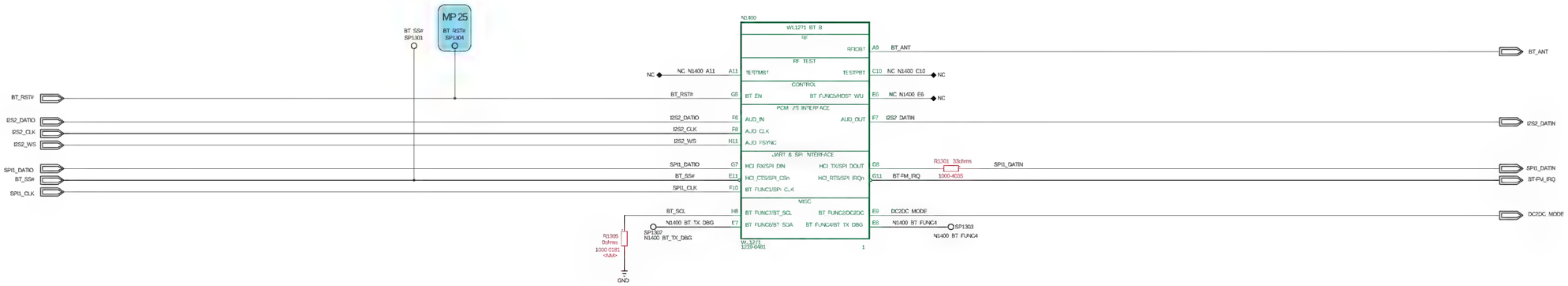
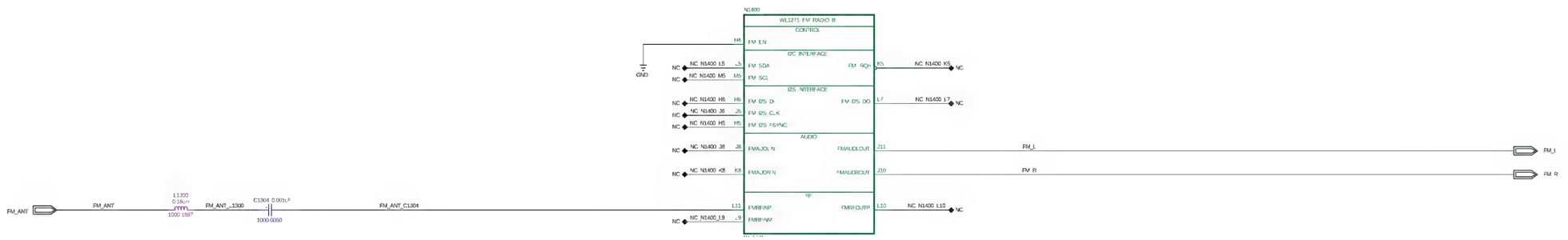
Document Nr	Revision
1226-8247 Page ACC 1(5)	1





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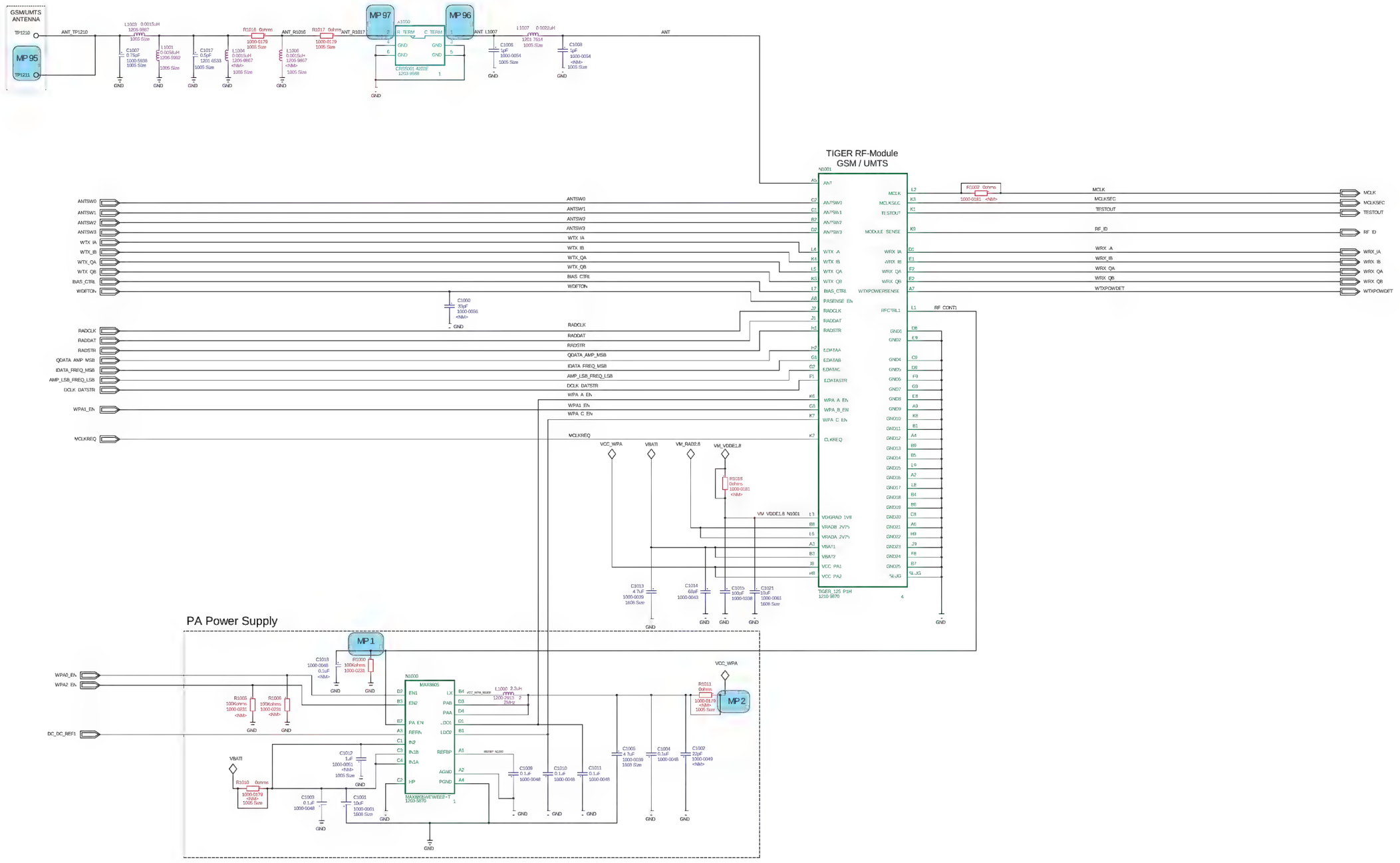
Document Nr	Revision
1226-8247 Page ACC 2(5)	1



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Document Nr	Revision
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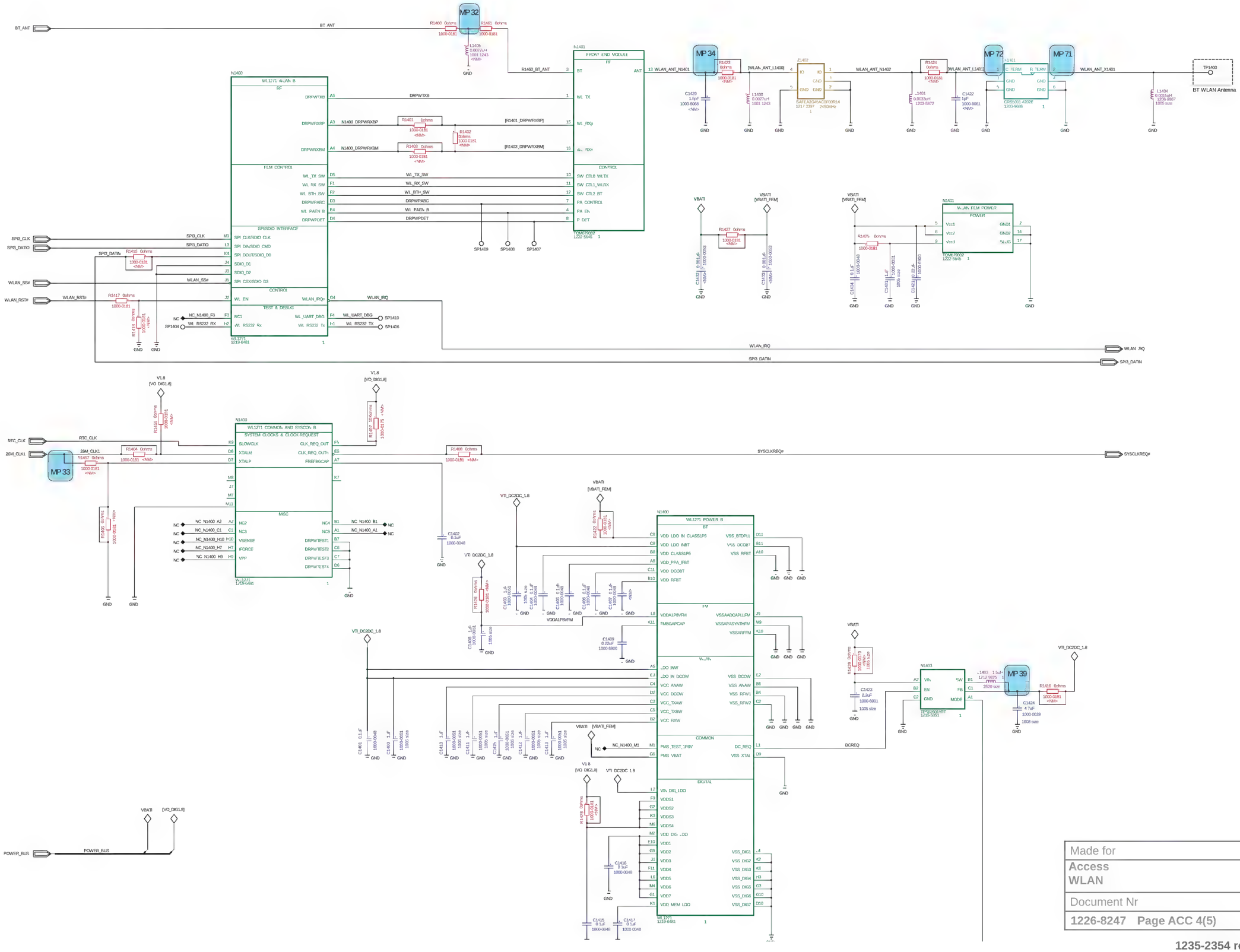

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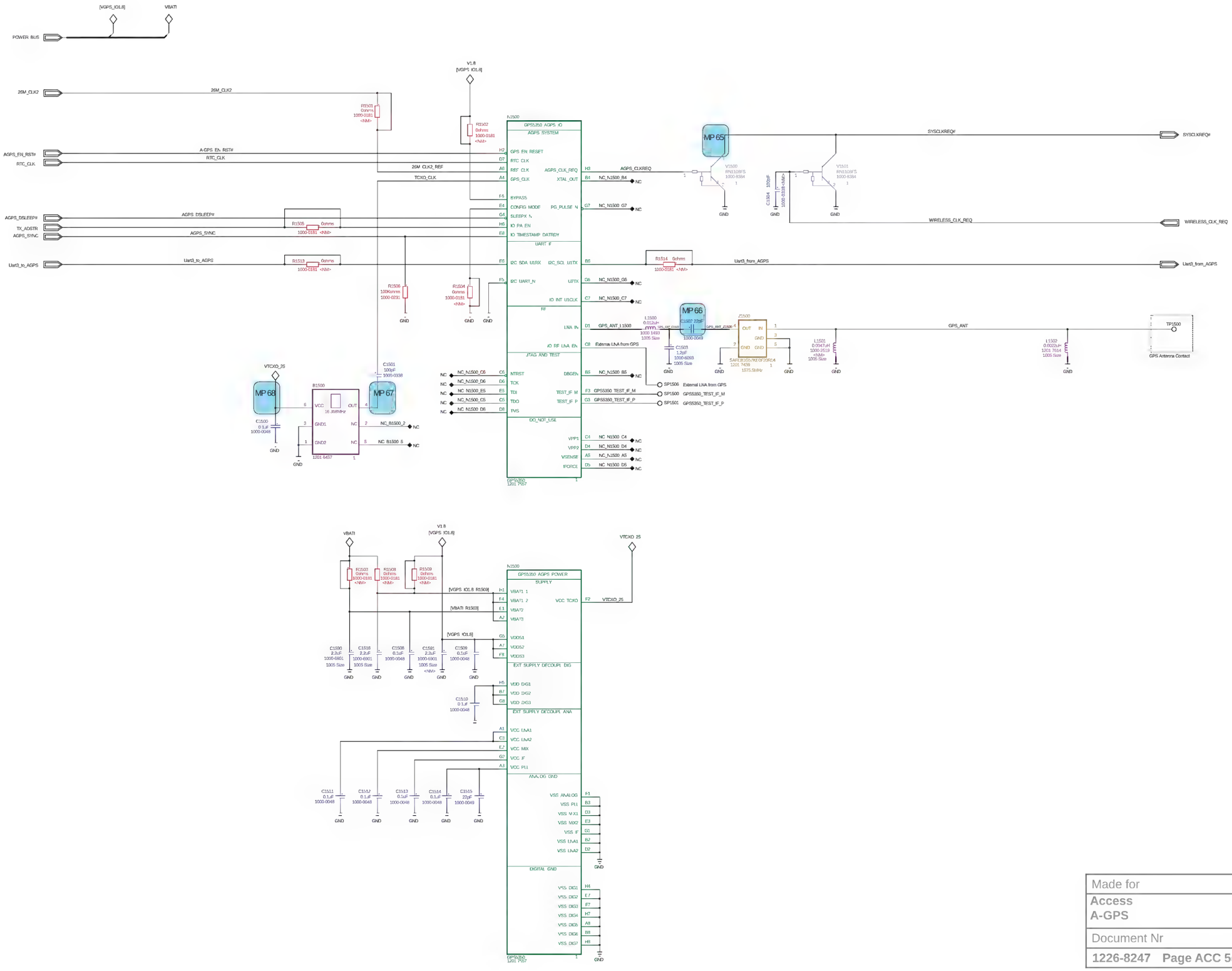

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Document Nr	Revision
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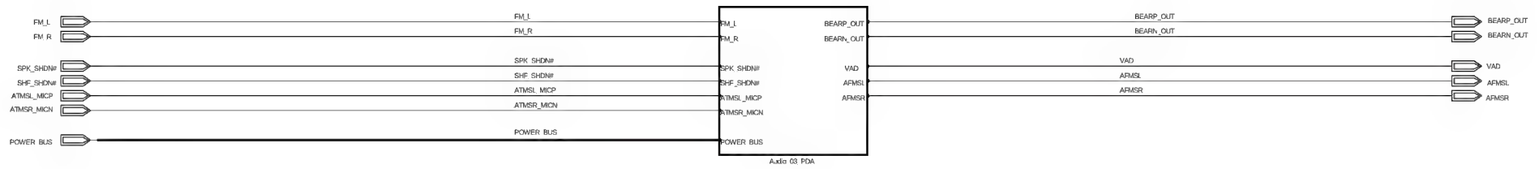

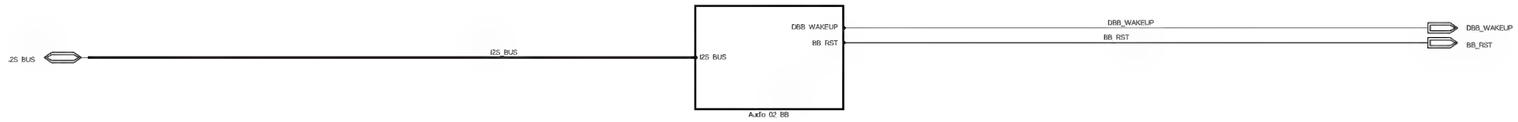

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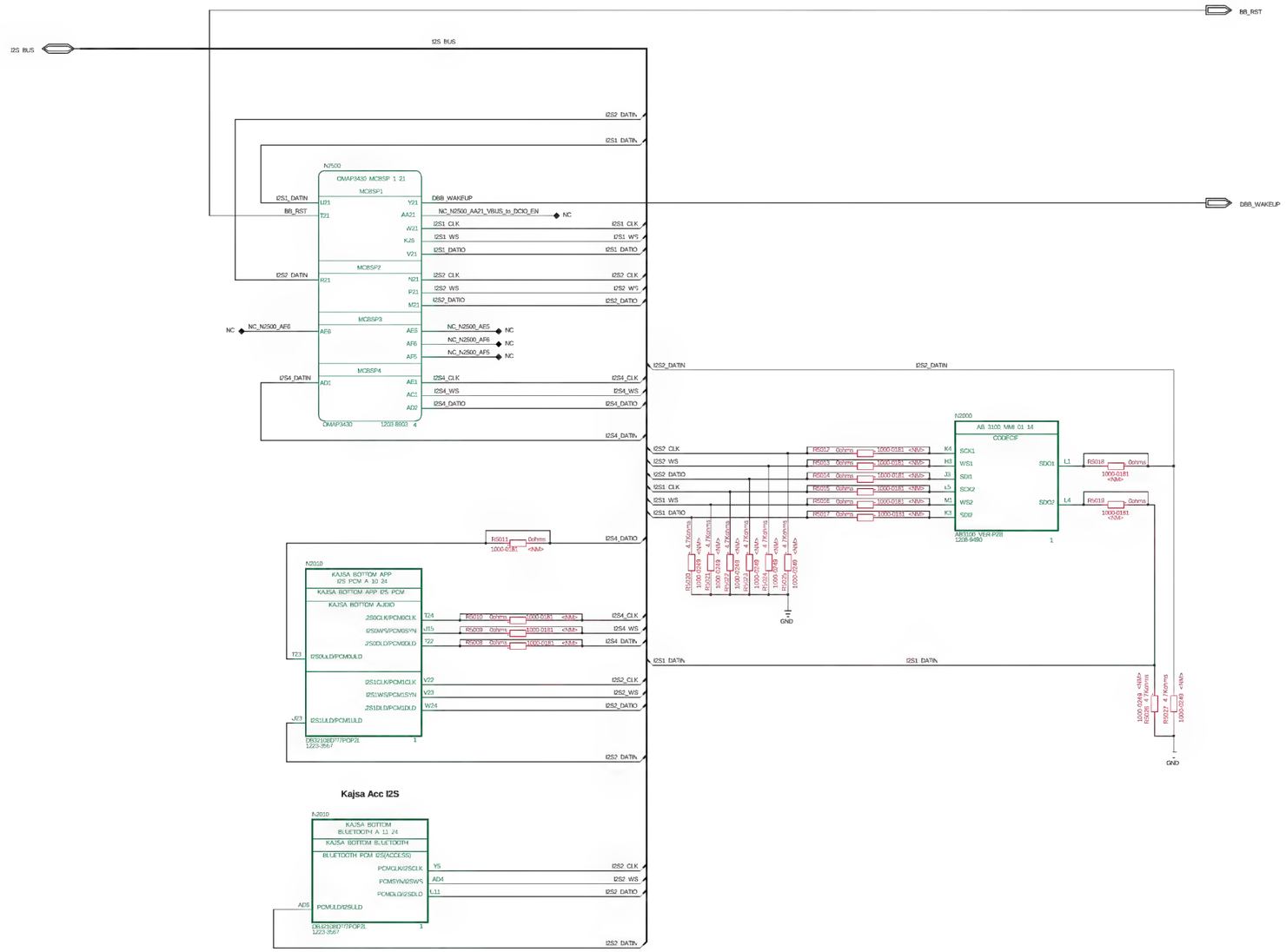
Document Nr	Revision
1226-8247 **Page Audio 1(3)**	1



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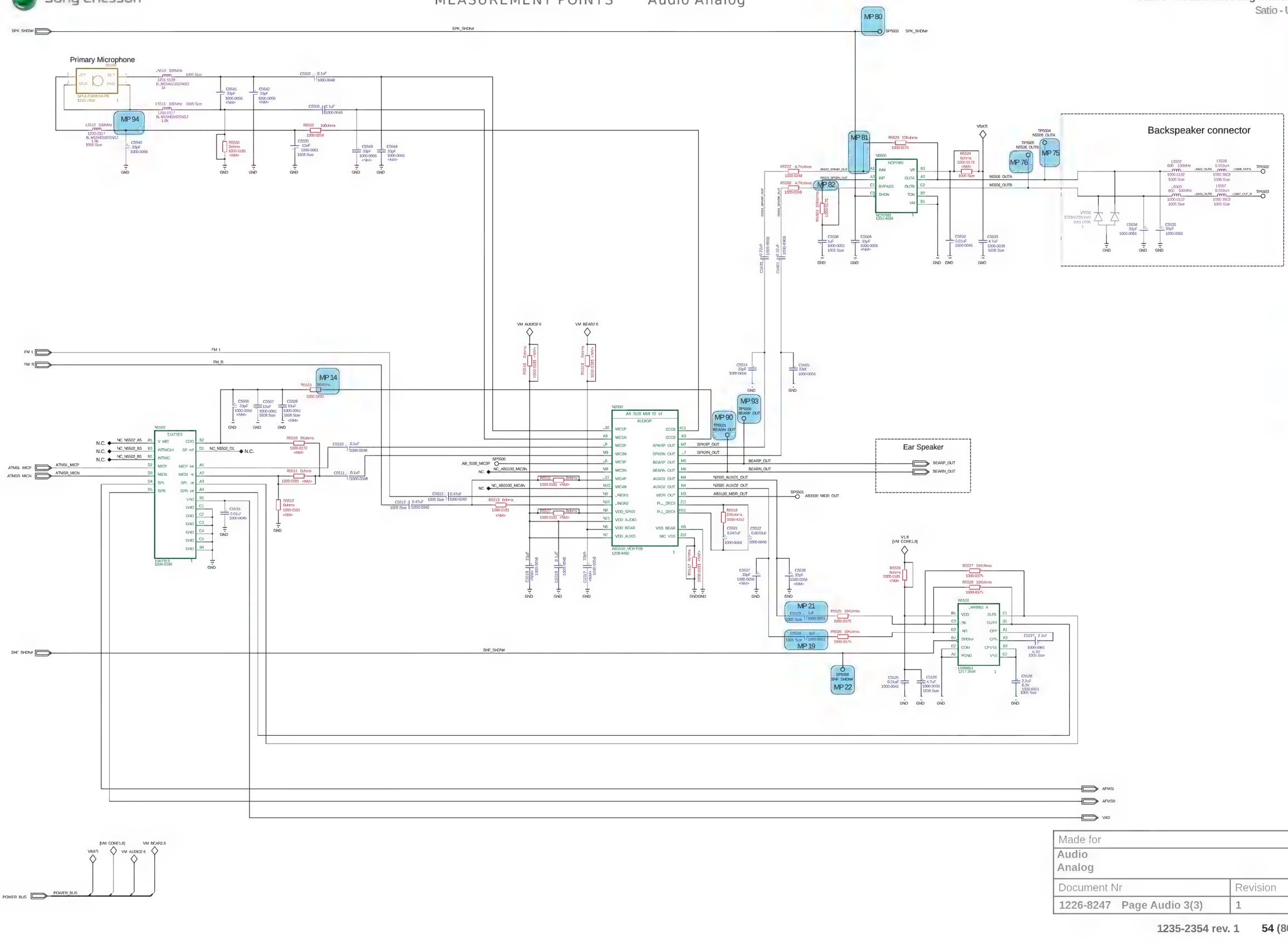
Document Nr	Revision
1226-8247 Page Audio 2(3)	1



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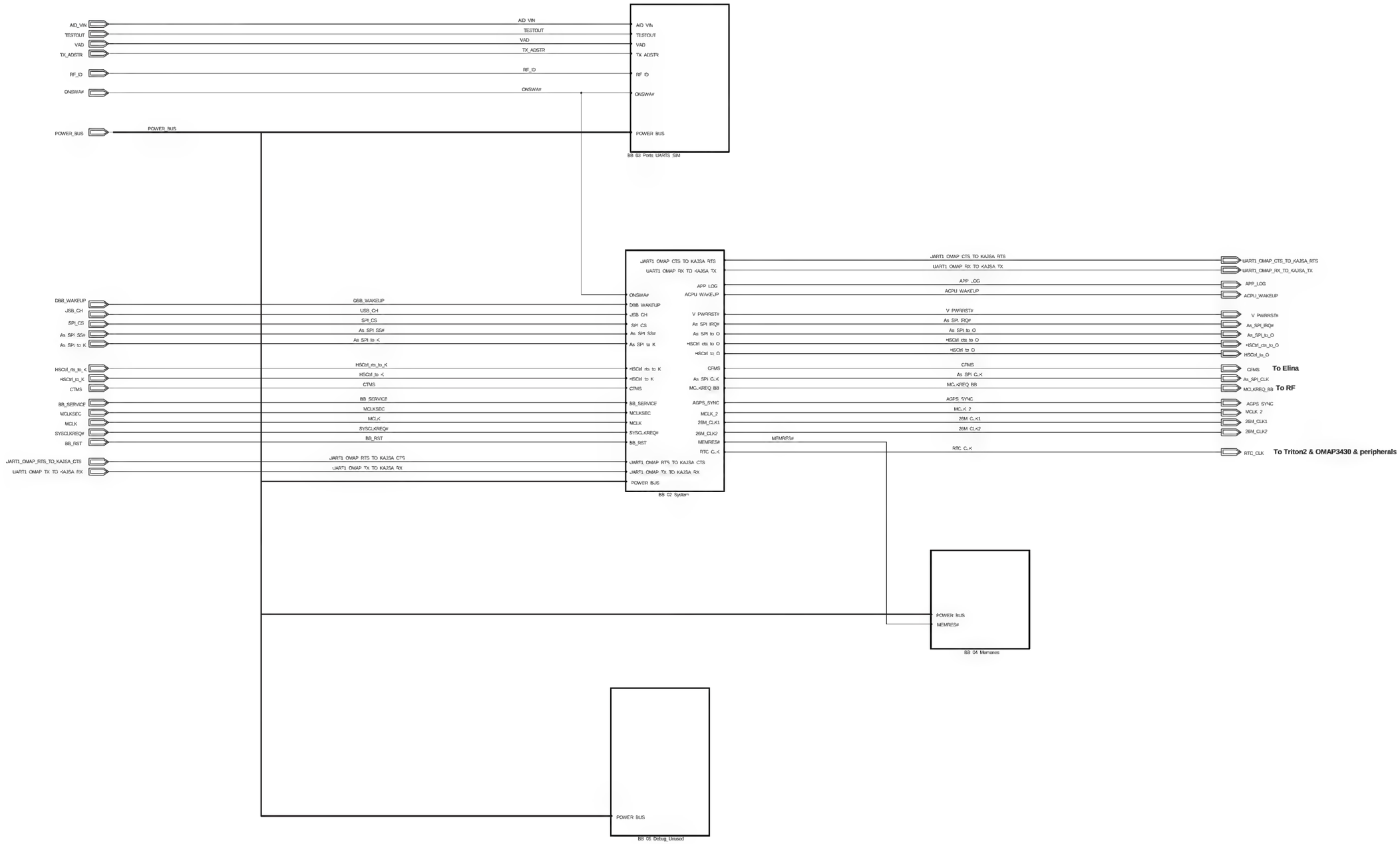
Document Nr	Revision
1226-8247 Page Audio 3(3)	1



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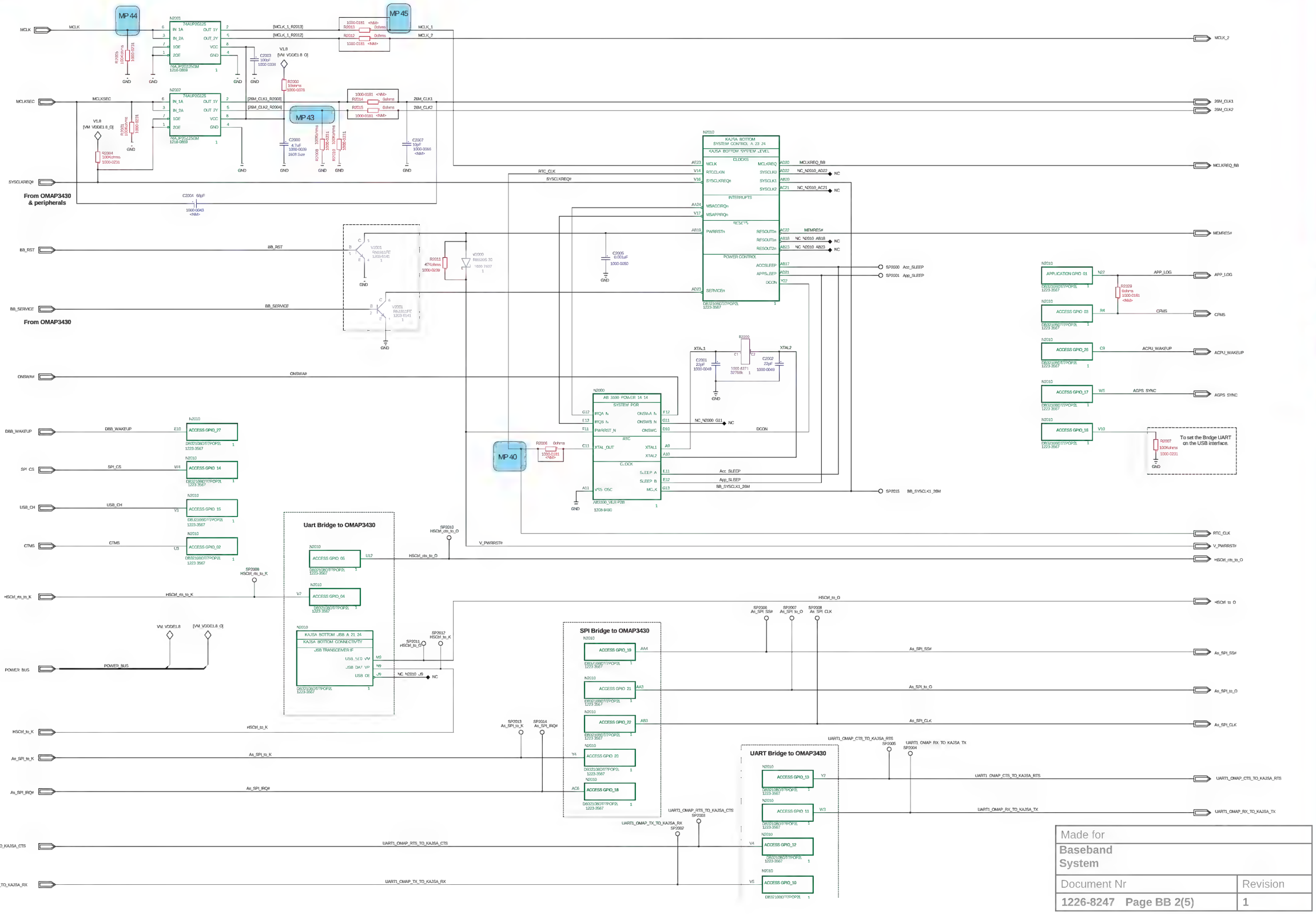
Document Nr	Revision
1226-8247 **Page BB 1(5)**	1



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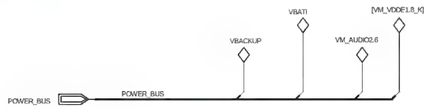
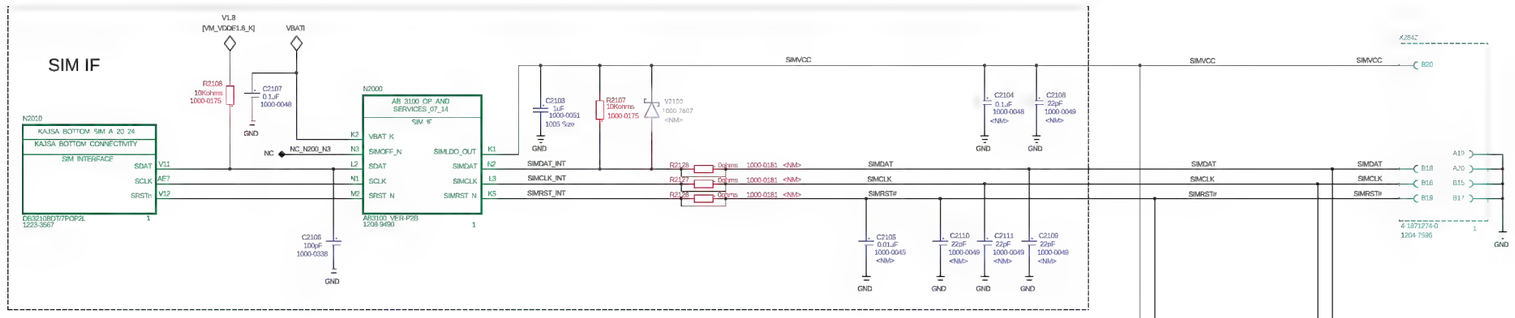
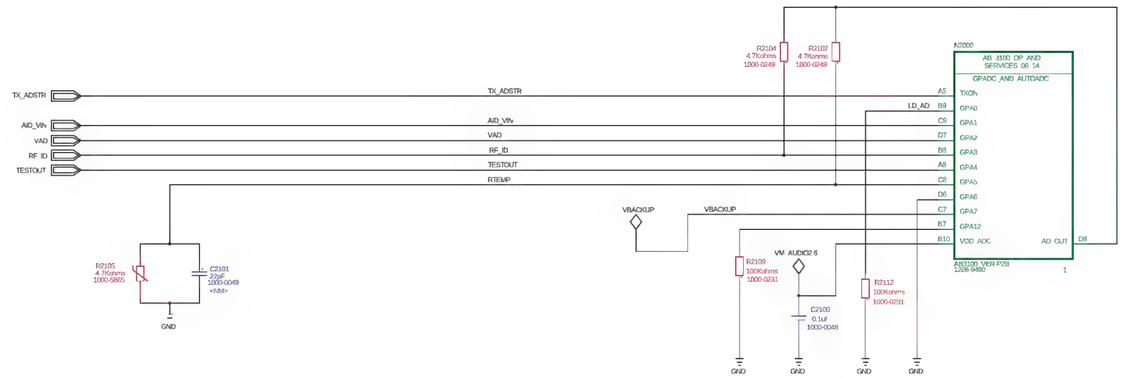
Document Nr	Revision
1226-8247 Page BB 2(5)	1







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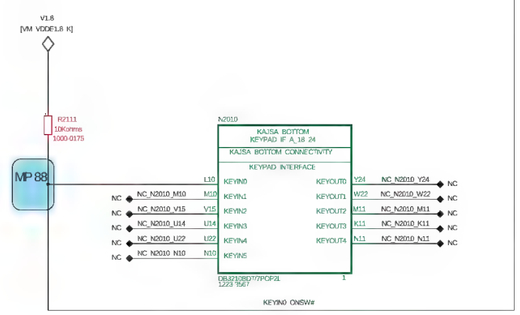

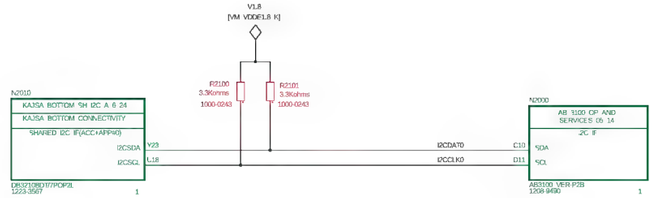

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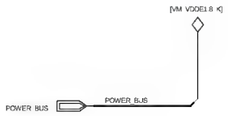
Document Nr	Revision
1226-8247 Page BB 3(5)	1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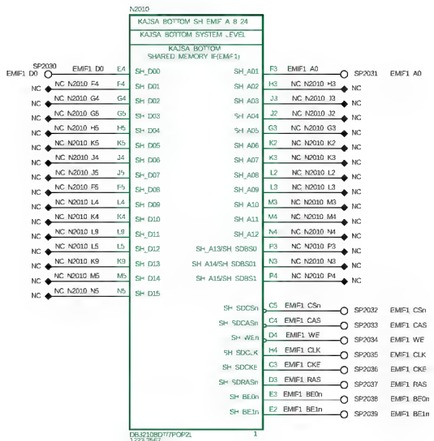
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SP2030
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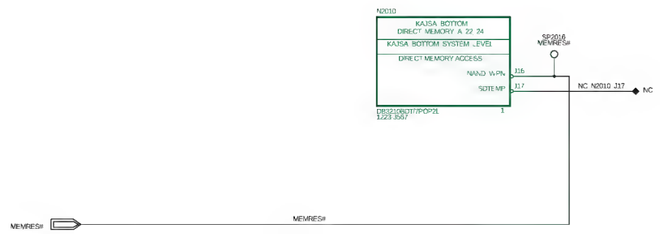
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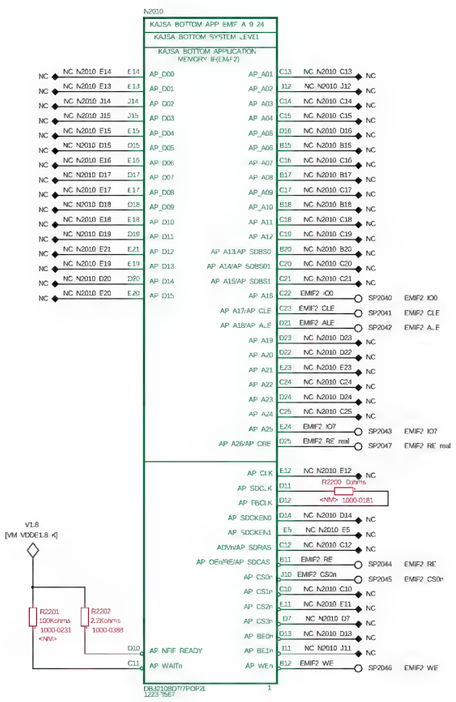
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AP_A17/AP_CLE
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AP_FBCLK
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SP2041
SP2042
SP2043
SP2047
SP2044
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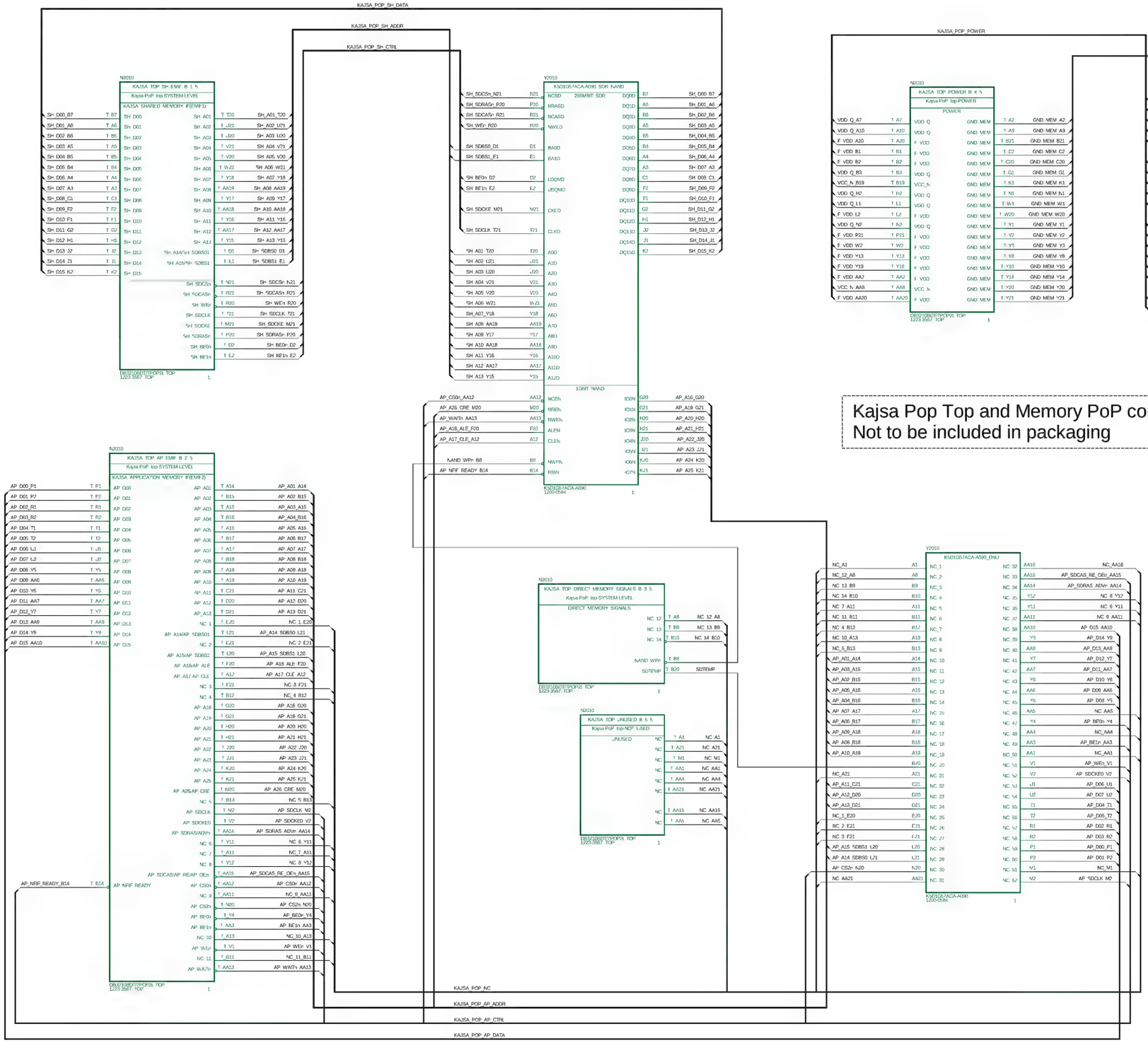

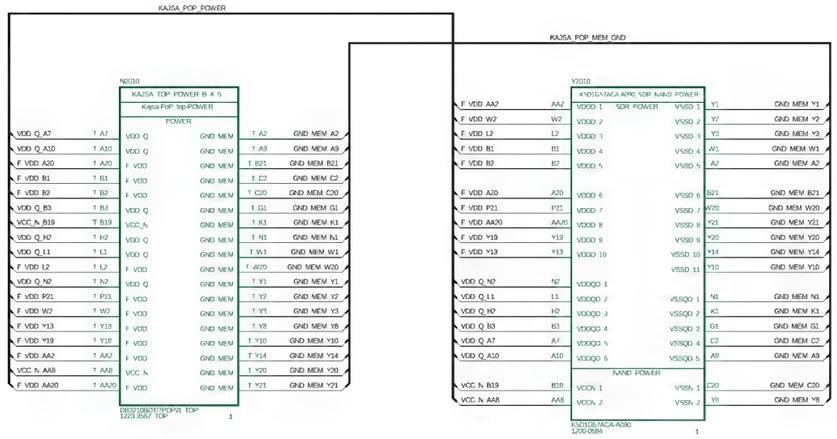

Kajsa Pop Top and Memory PoP connection
Not to be included in packaging

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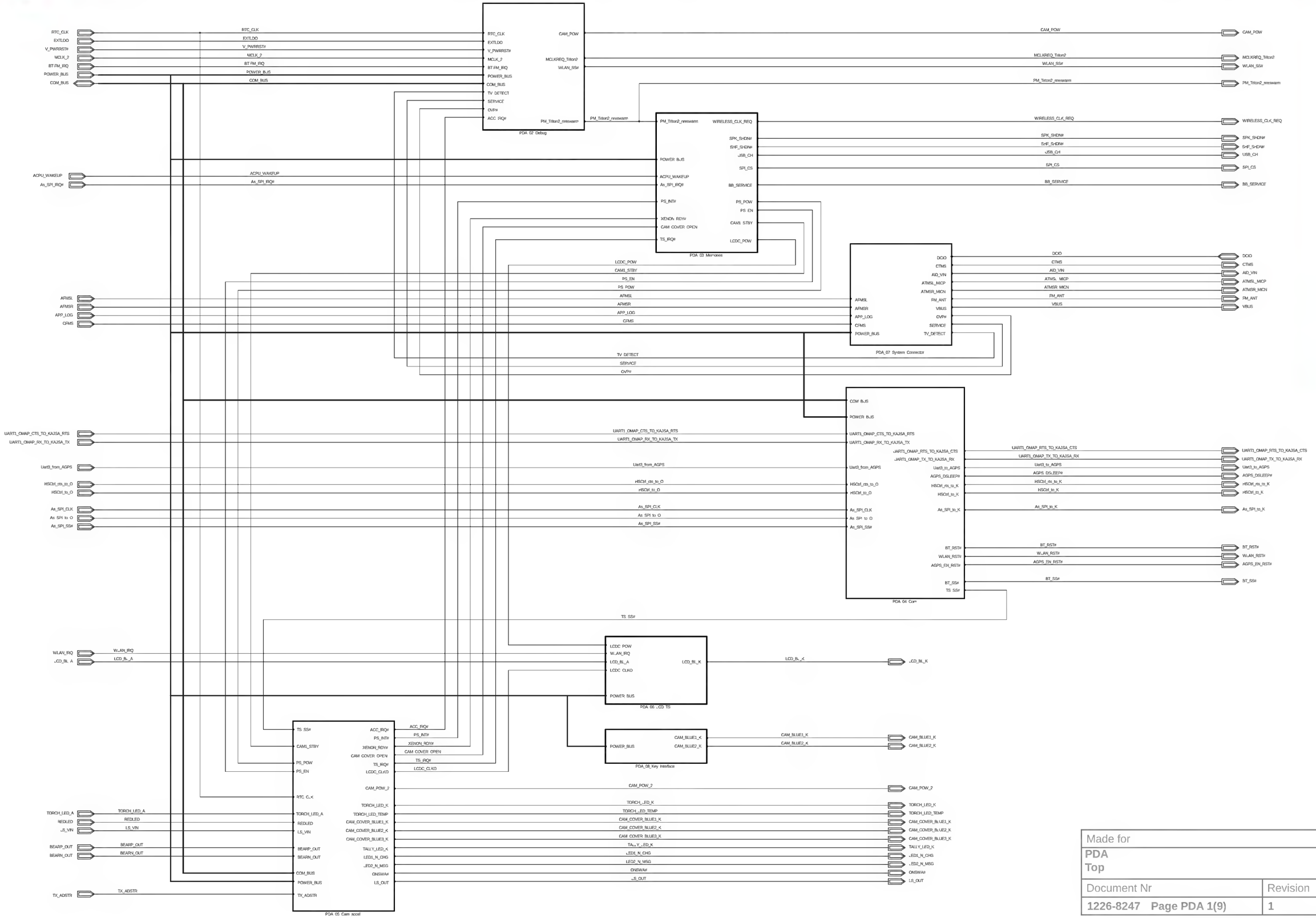
Document Nr	Revision
1226-8247 Page BB 5(5)	1



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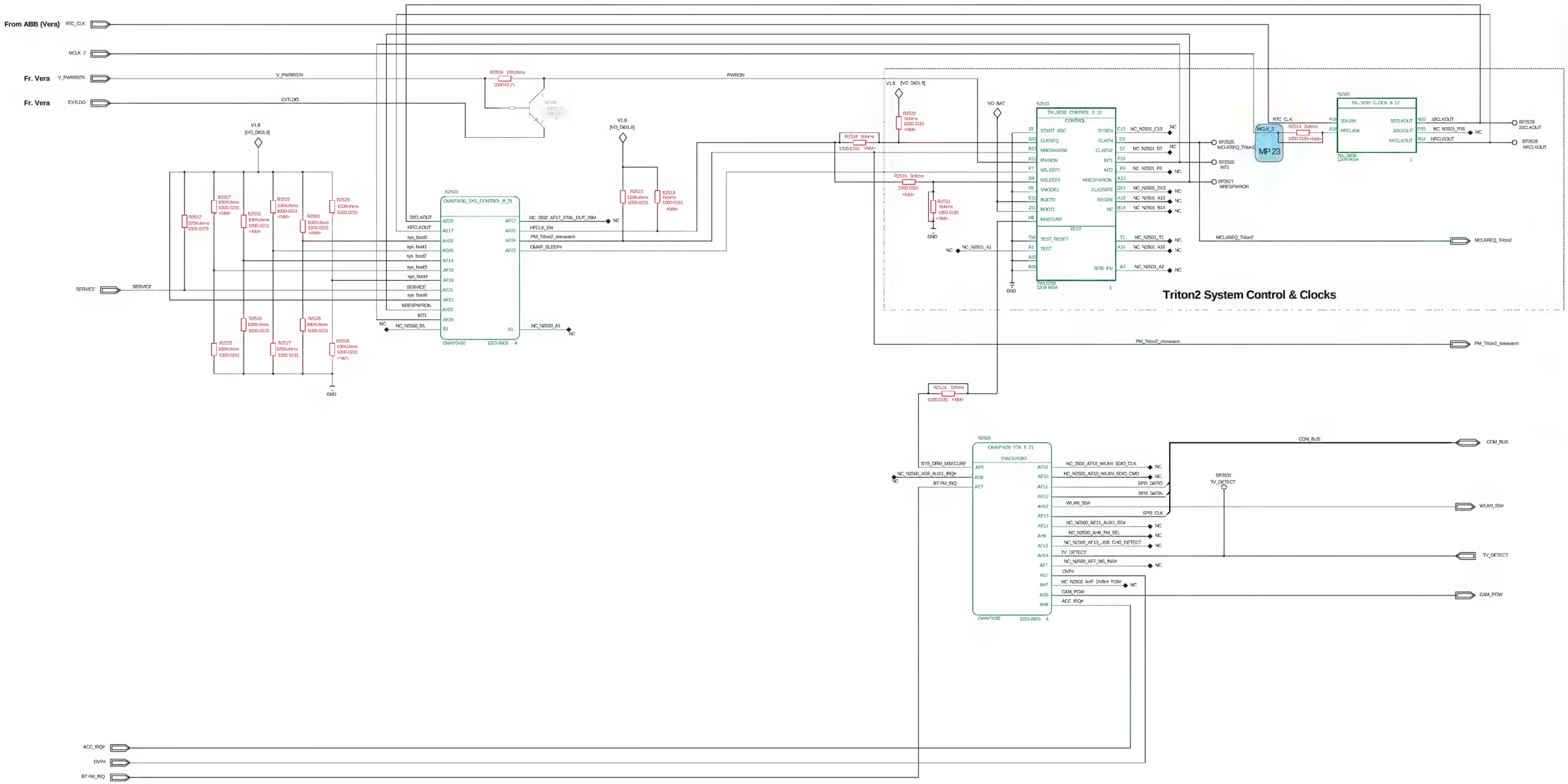

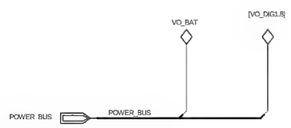

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Document Nr	Revision
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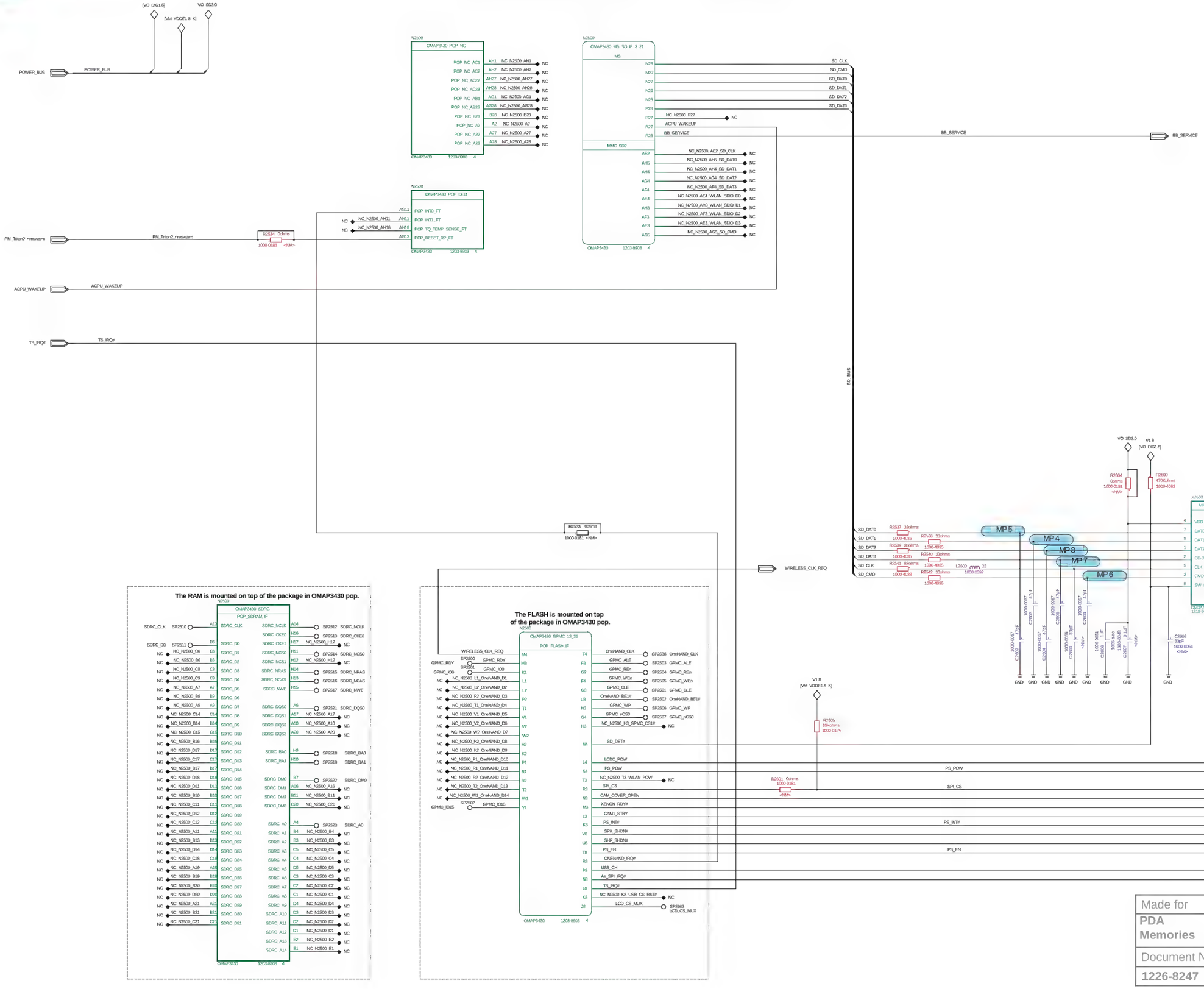

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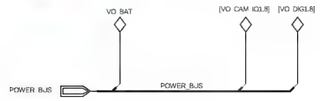
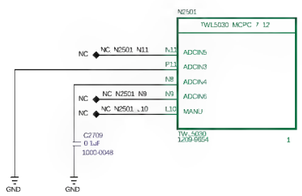
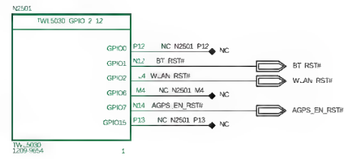
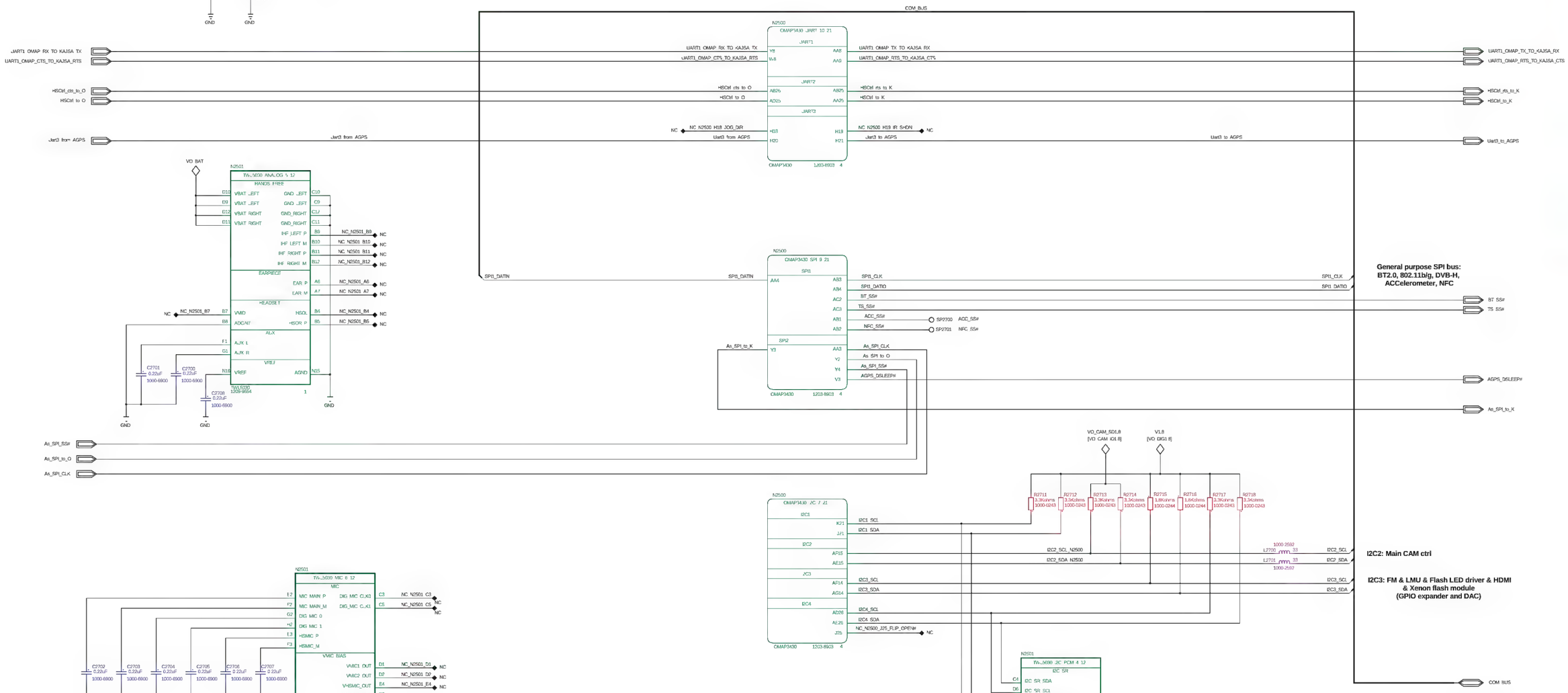
1226-8247 Page PDA 3(9)	1









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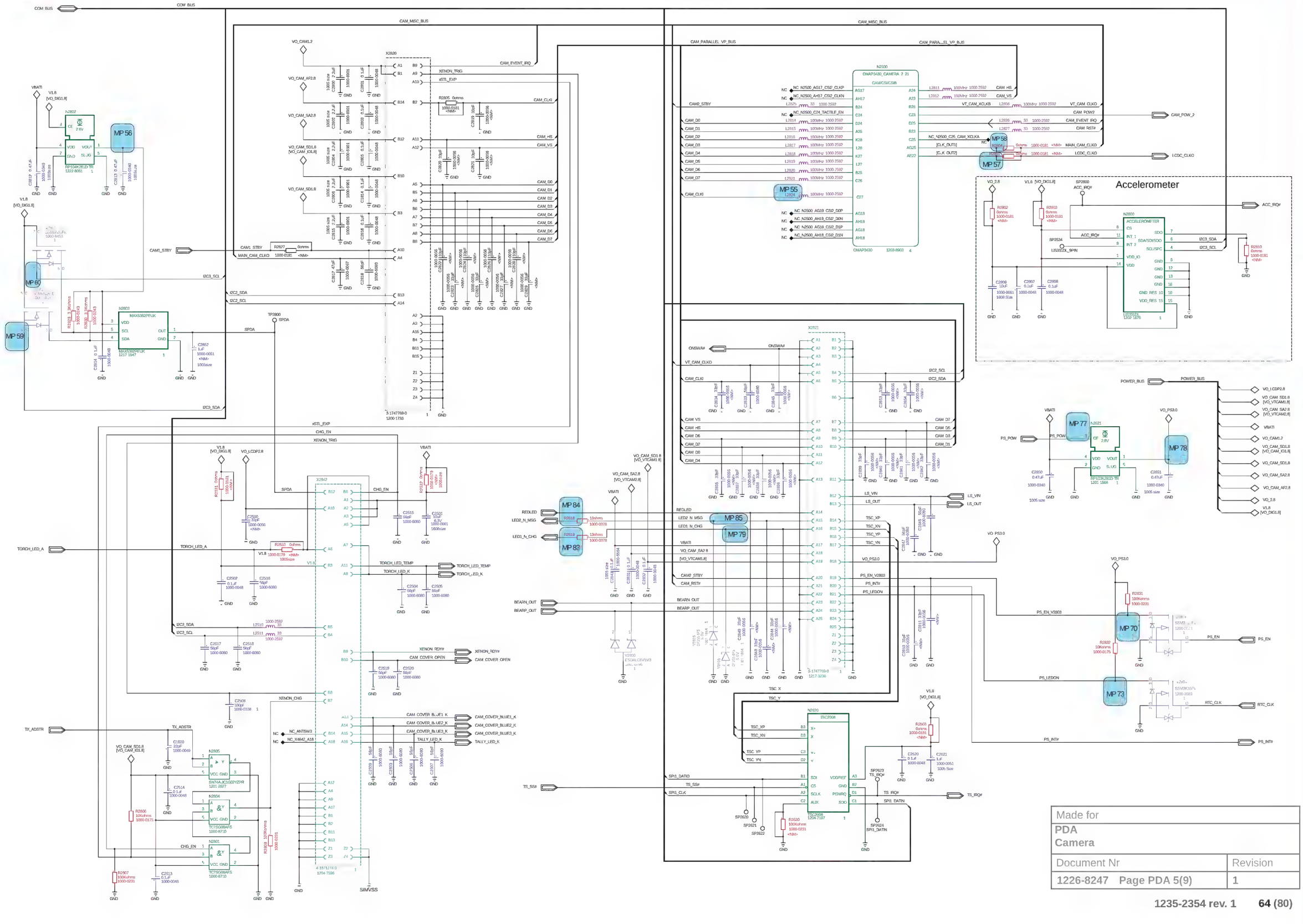
1226-8247 Page PDA 4(9)	1



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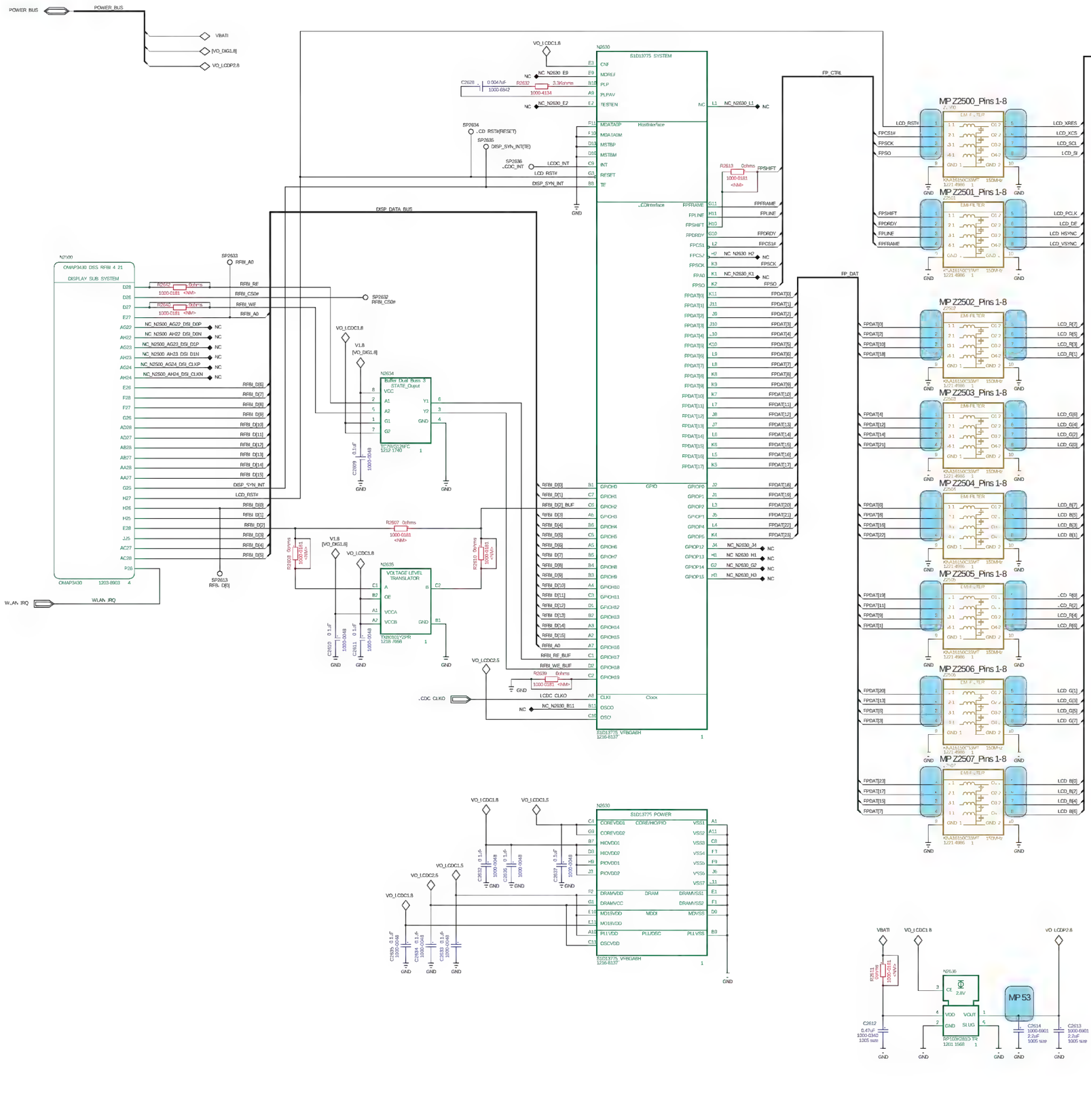

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Document Nr	Revision
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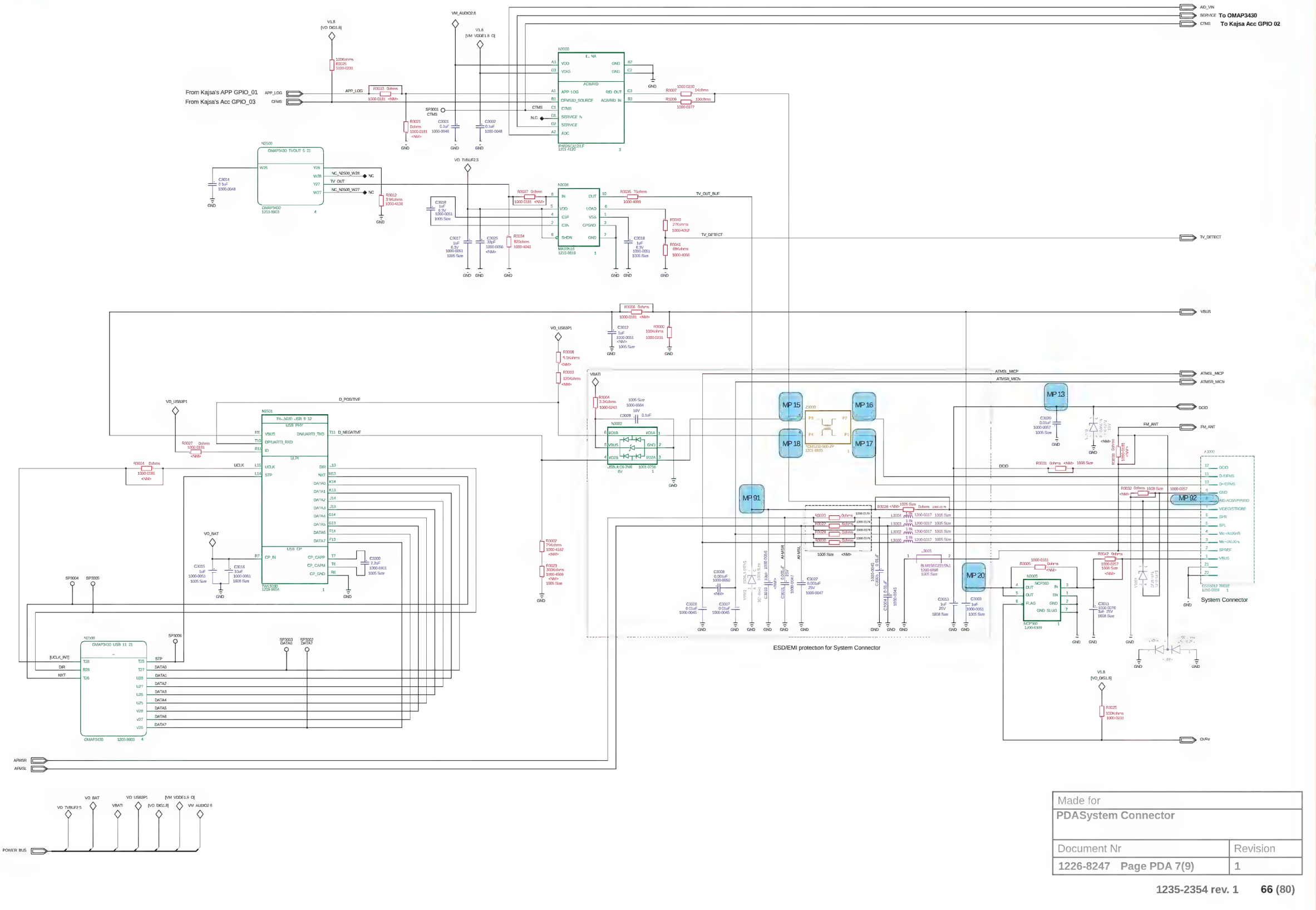

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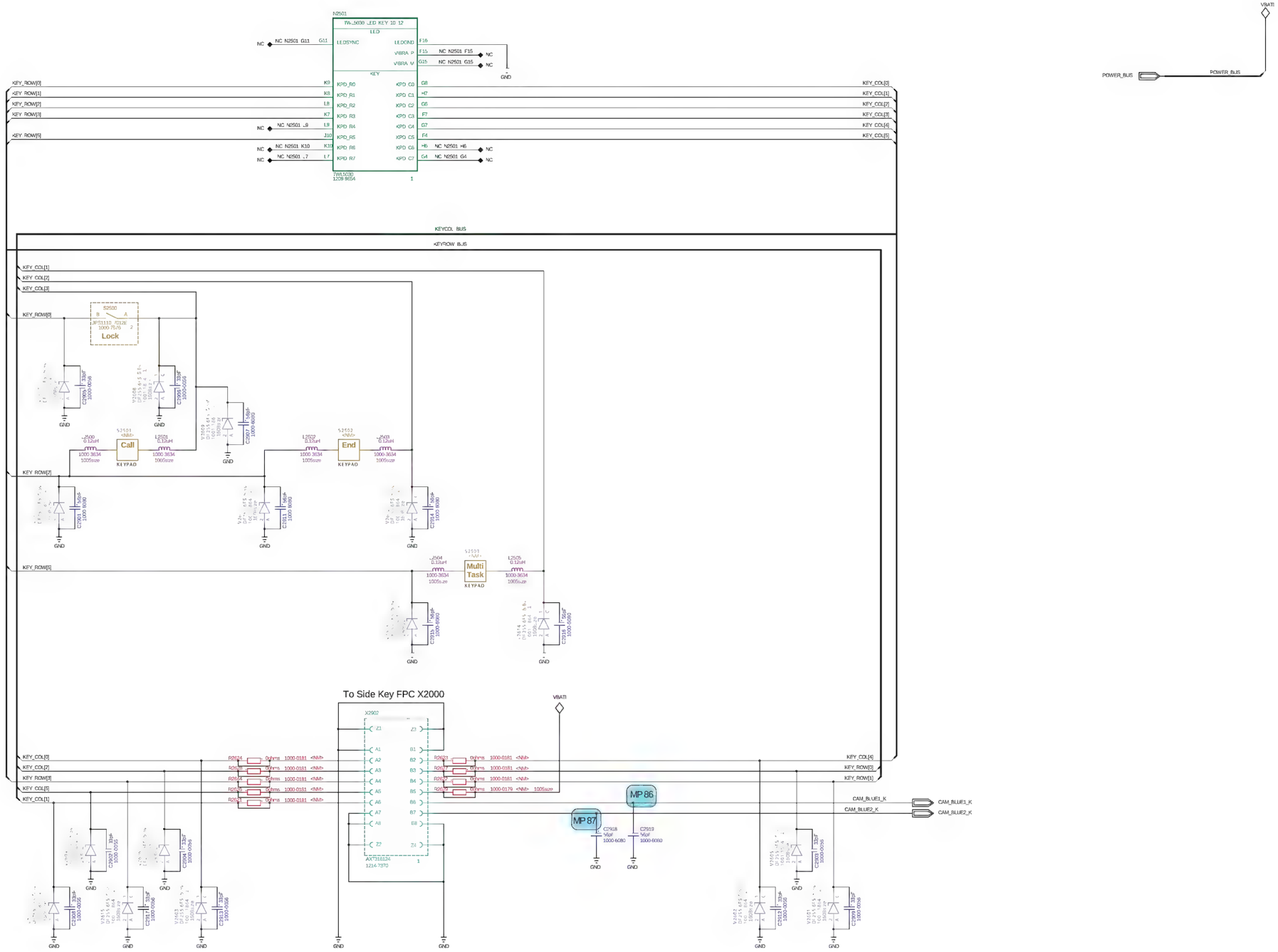

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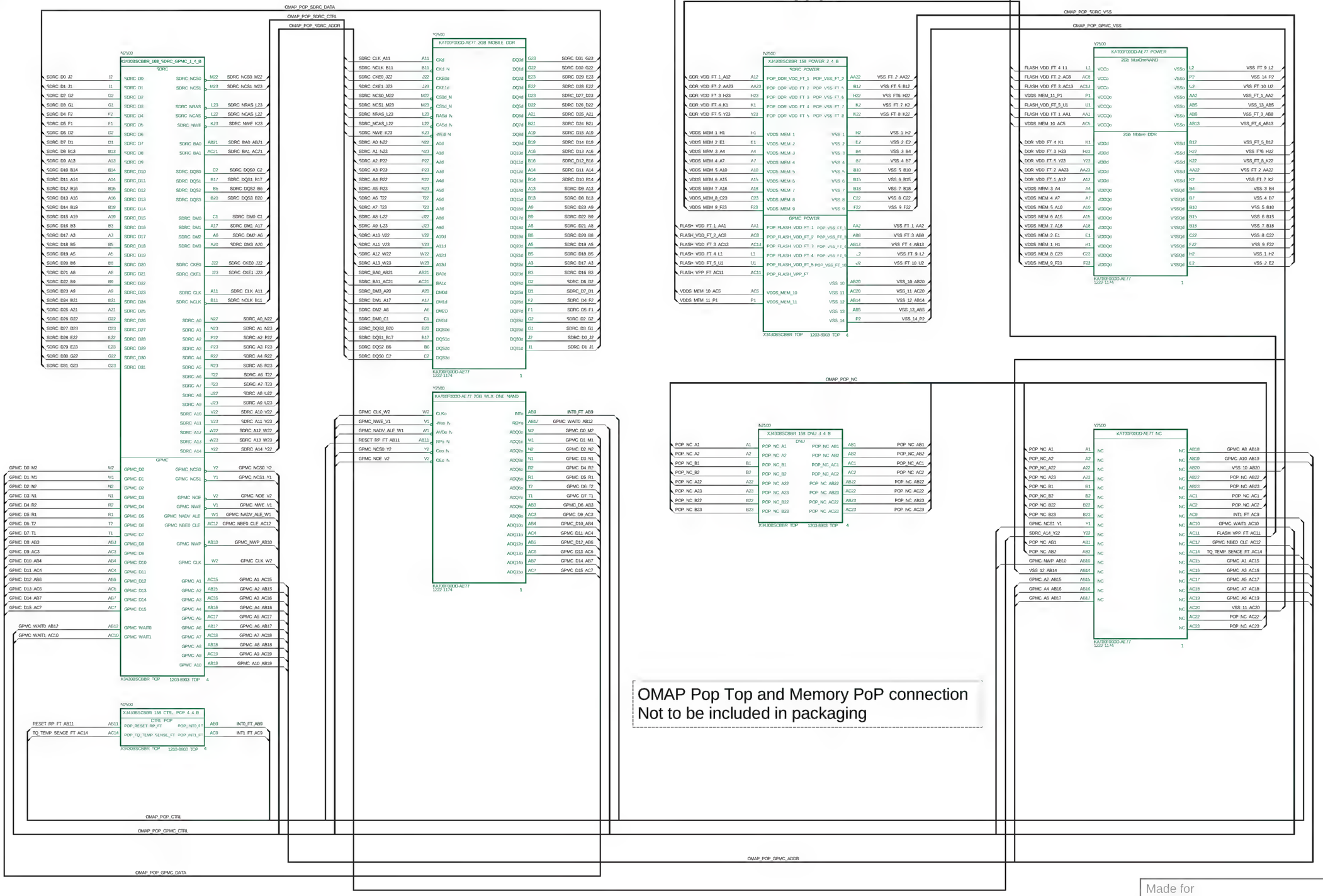
Document Nr	Revision
1226-8247 Page PDA 8(9)	1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OMAP_POP_CTRL
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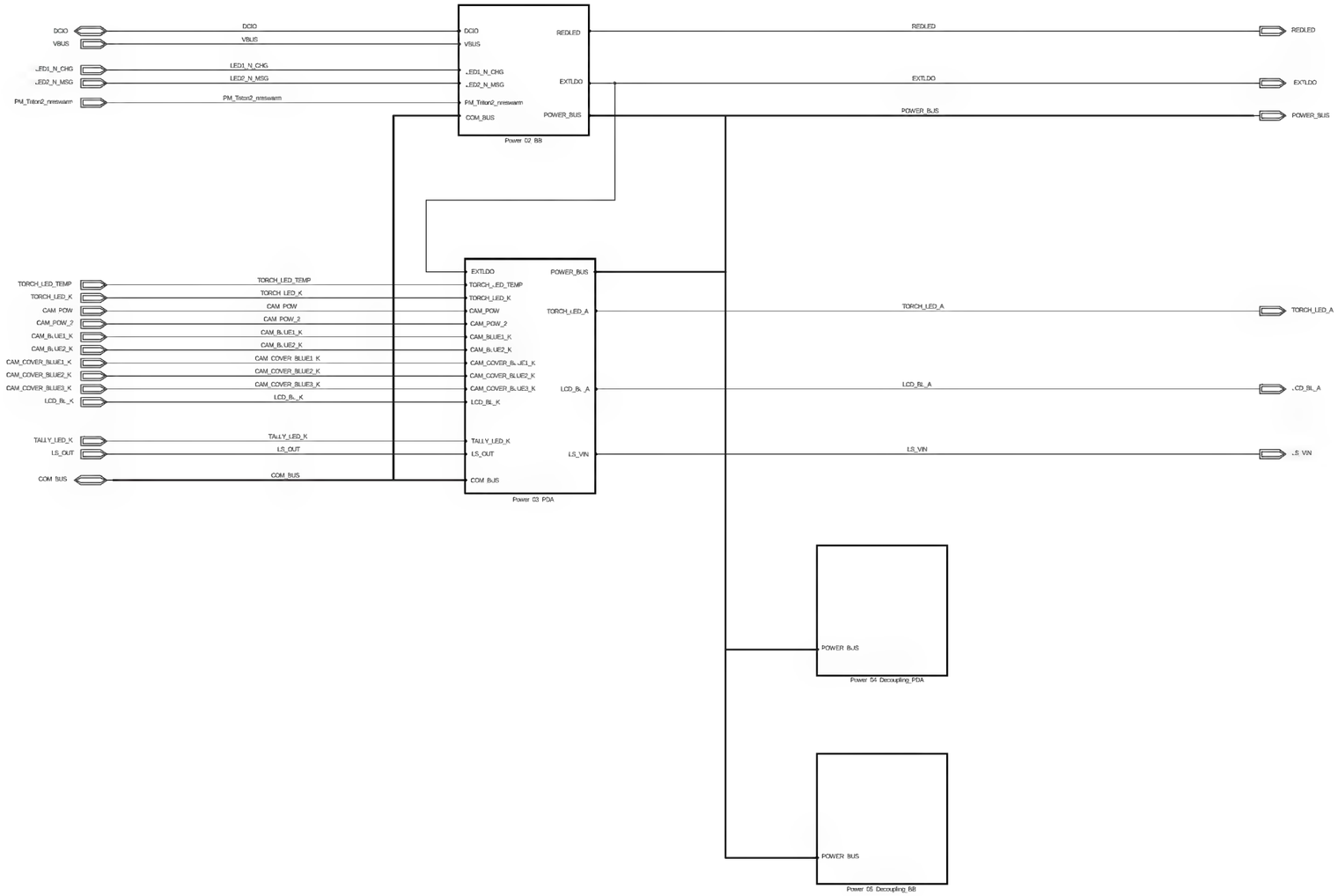
OMAP Pop Top and Memory PoP connection
Not to be included in packaging



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Document Nr	Revision
1226-8247 Page Power 1(5)	1

Radio Power Supply

Unused Parts of AB3100

BB LED'S

Vibrator

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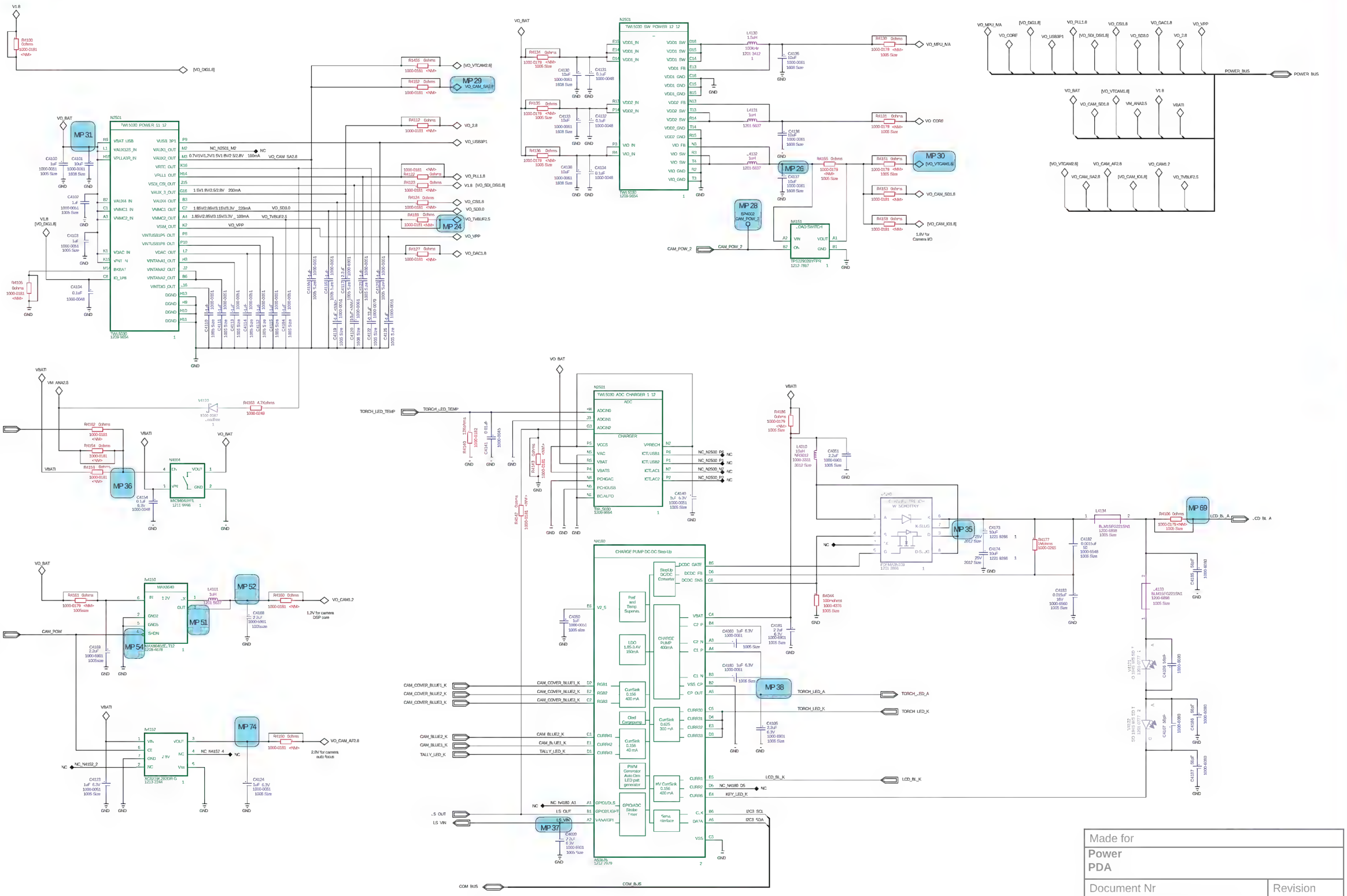
Document Nr	Revision
1226-8247 Page Power 2(5)	1



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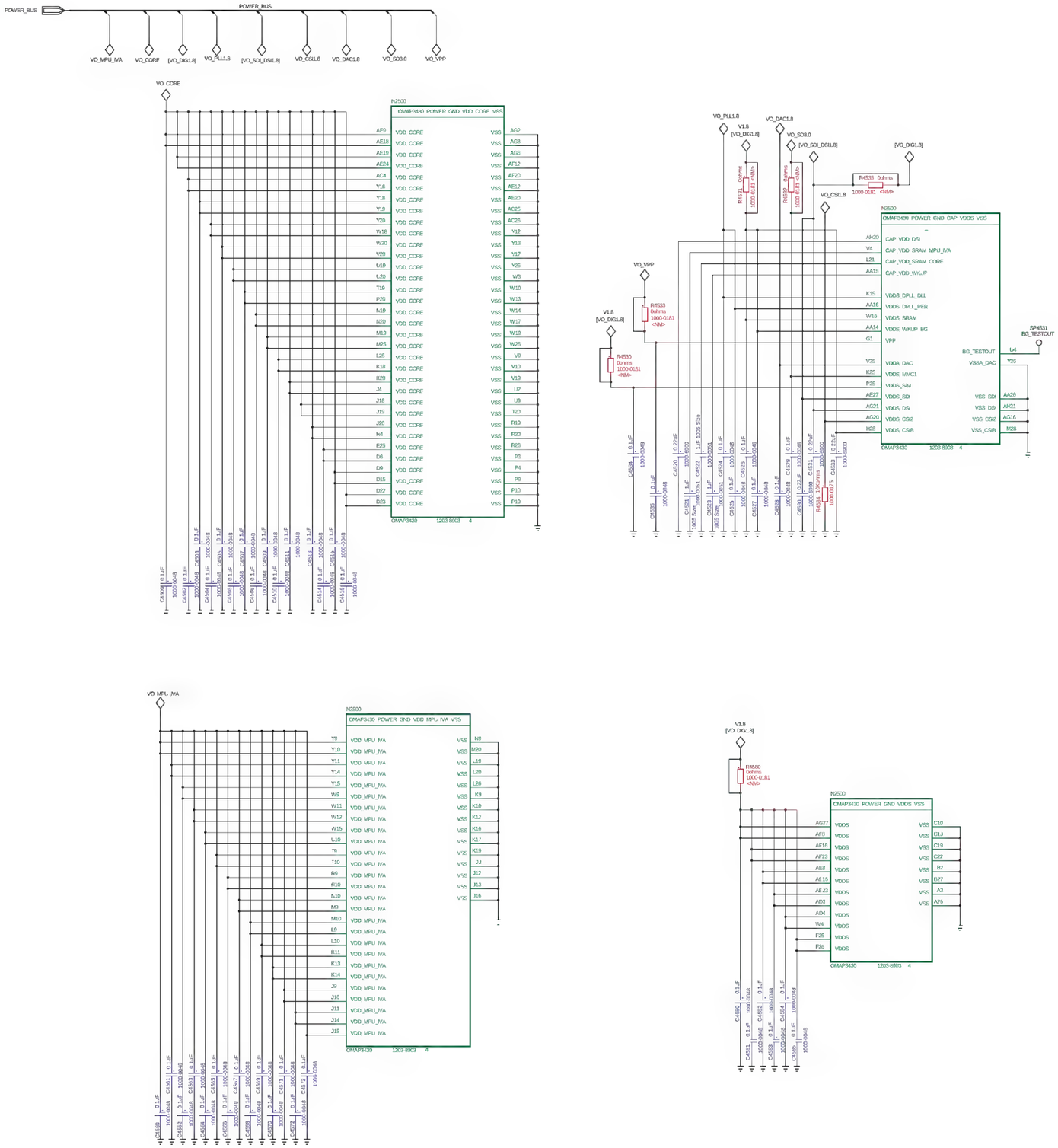
1226-8247 Page Power 3(5)	1



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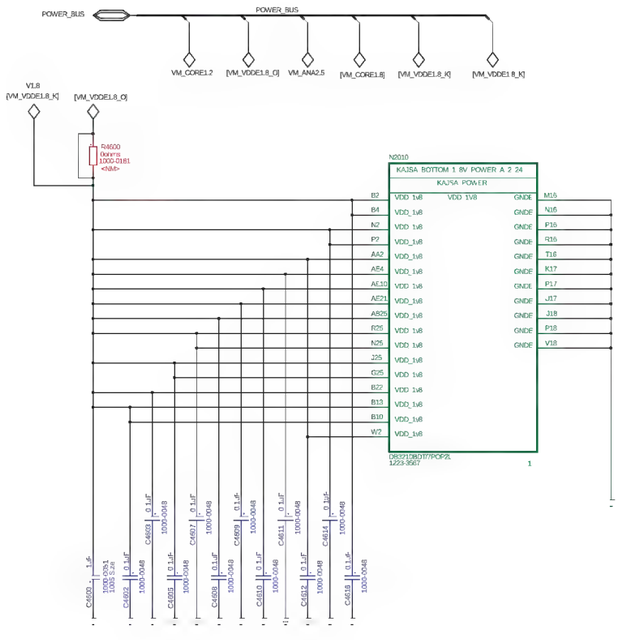

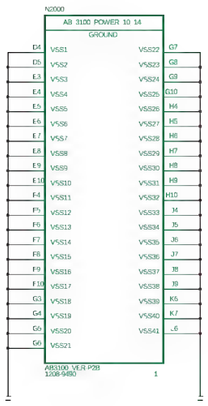

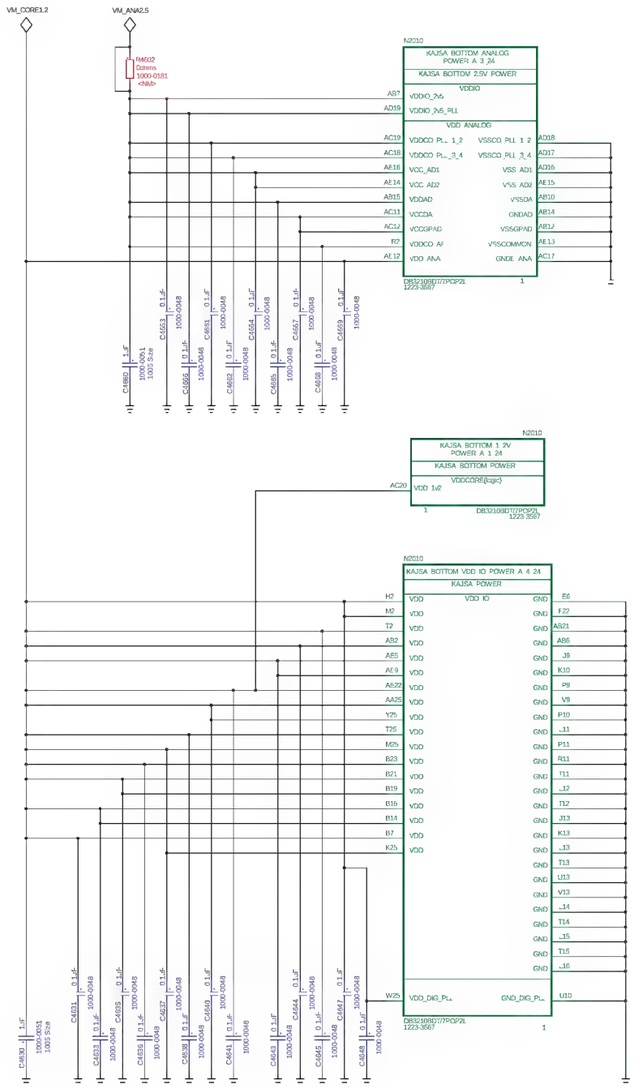

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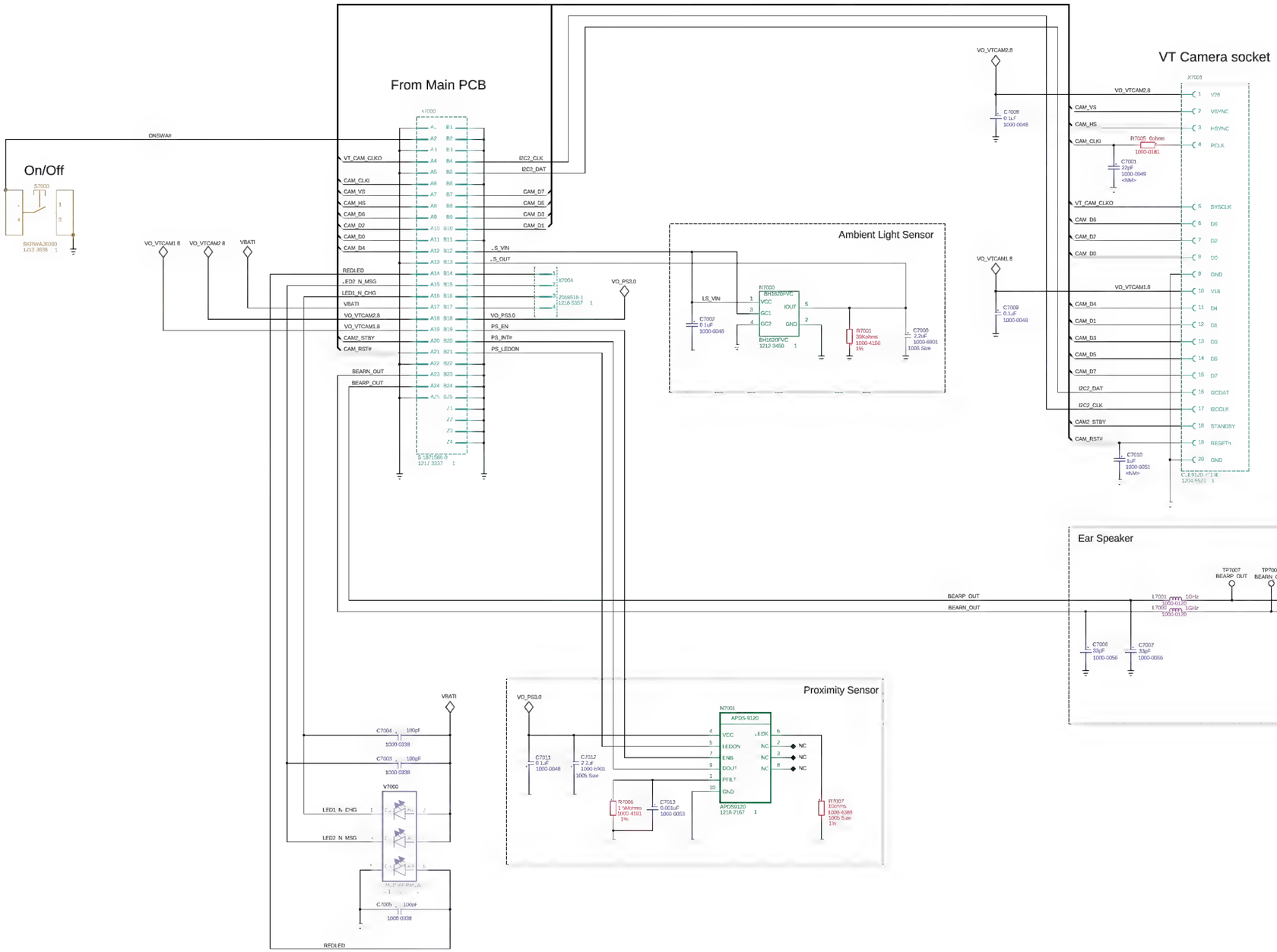
1226-8247 Page PDA 5(5)	1



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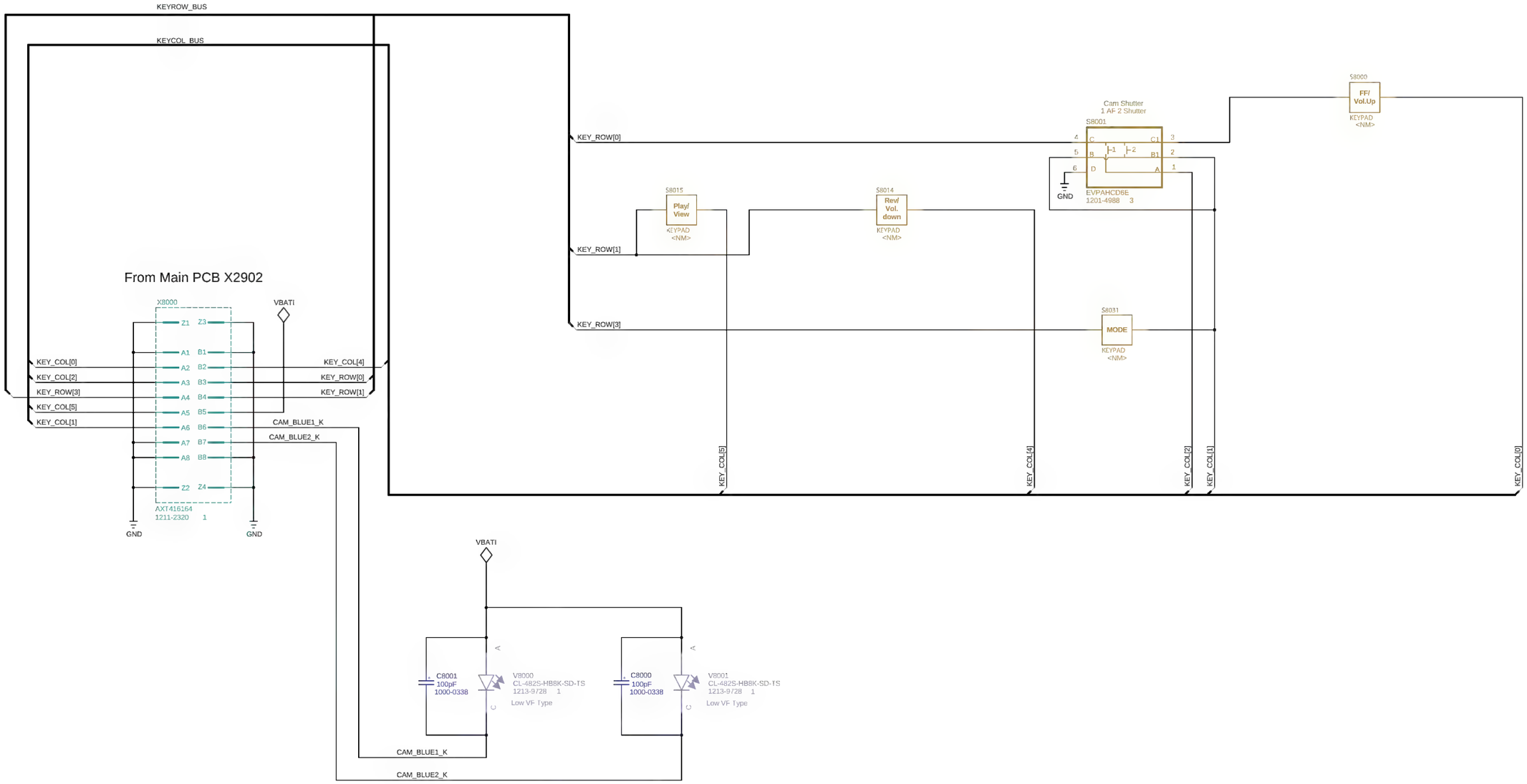

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Document Nr	Revision
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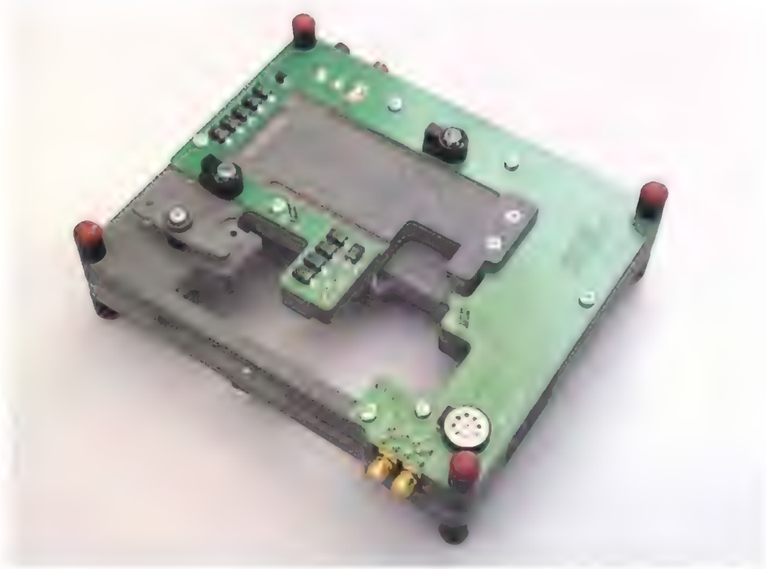
TROUBLESHOOTING FIXTURE SETUP INSTRUCTIONS

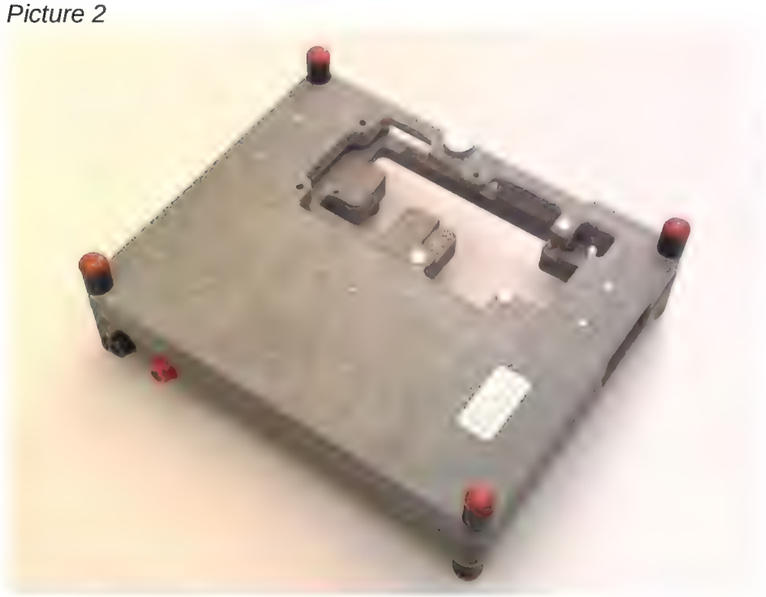
Top-part overview of the TRS Fixture, see picture 1.

Picture 1



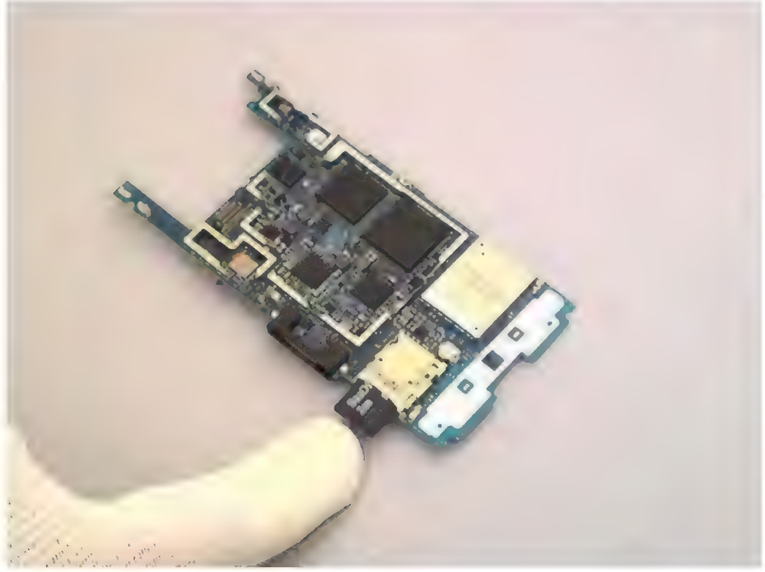
Bottom-part overview of the TRS Fixture, see picture 2.

Picture 2



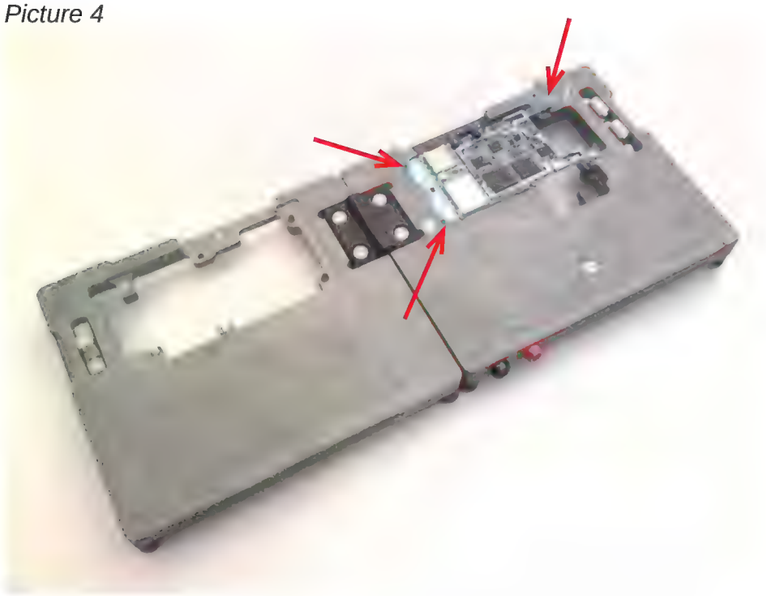
Insert Memory Card into X2600 Memory Card Holder according to picture 3.

Picture 3



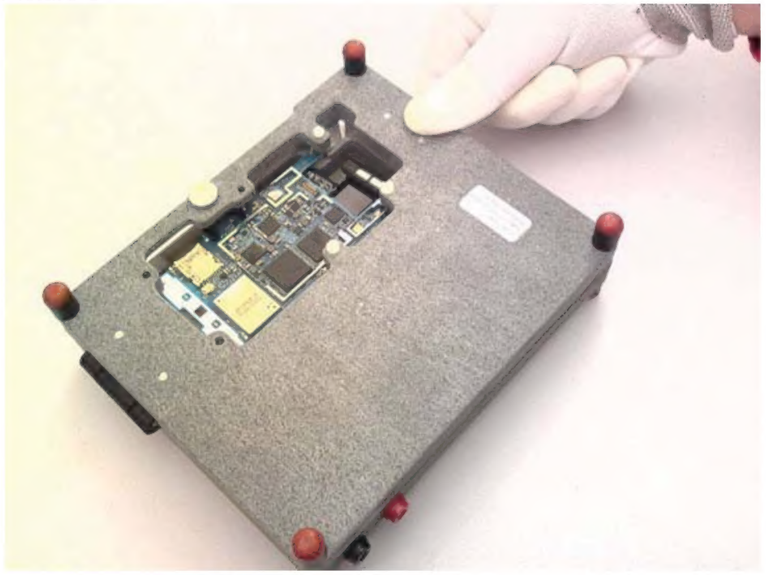
Open the TRS Fixture and place the PBA by using the Guiding Pins according to picture 4.

Picture 4



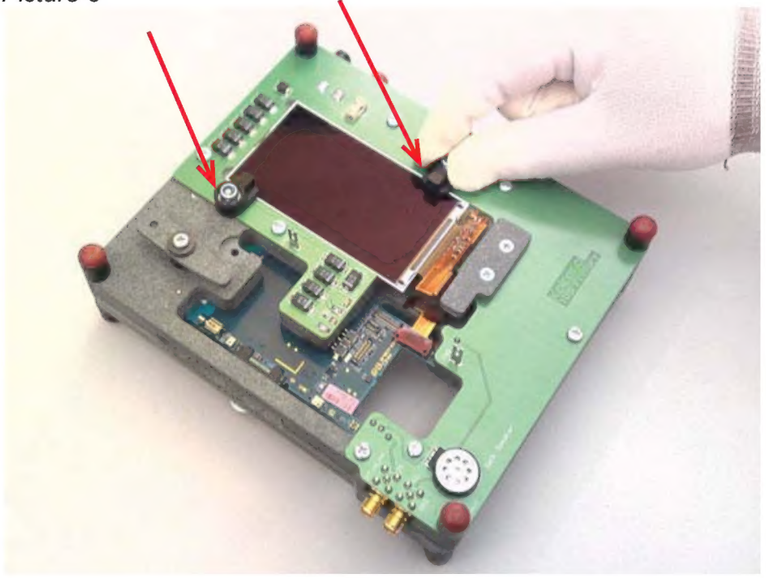
Close the TRS Fixture according to picture 5.

Picture 5



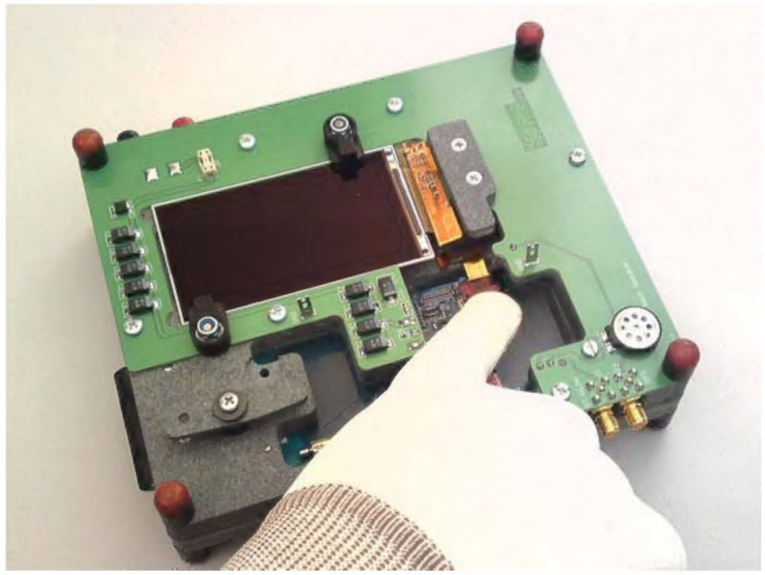
Place the Display 3.47” TFT on the TRS Fixture and secure it by using the locking screws according to picture 6.

Picture 6



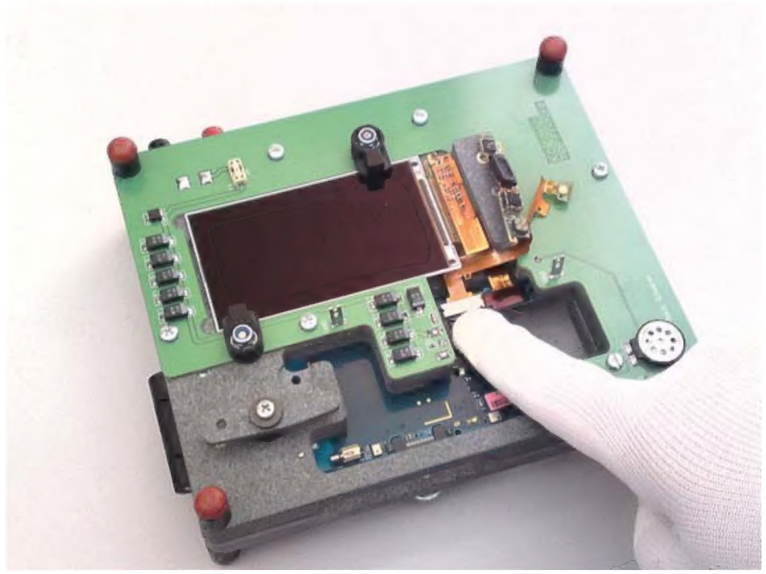
Connect the Display 3.47” TFT to the X2900 BtB connector on the PBA according to picture 7.

Picture 7



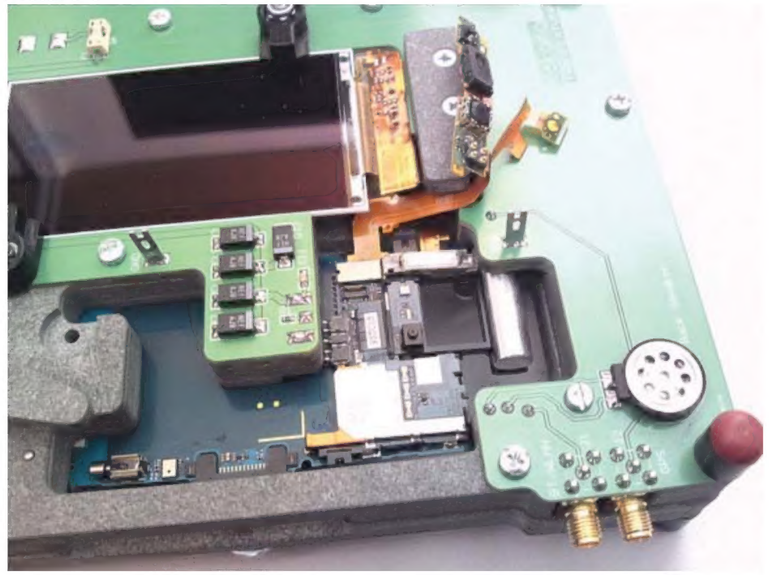
Connect the FPC Receiver to the X2821 BtB connector on the PBA according to picture 8.

Picture 8



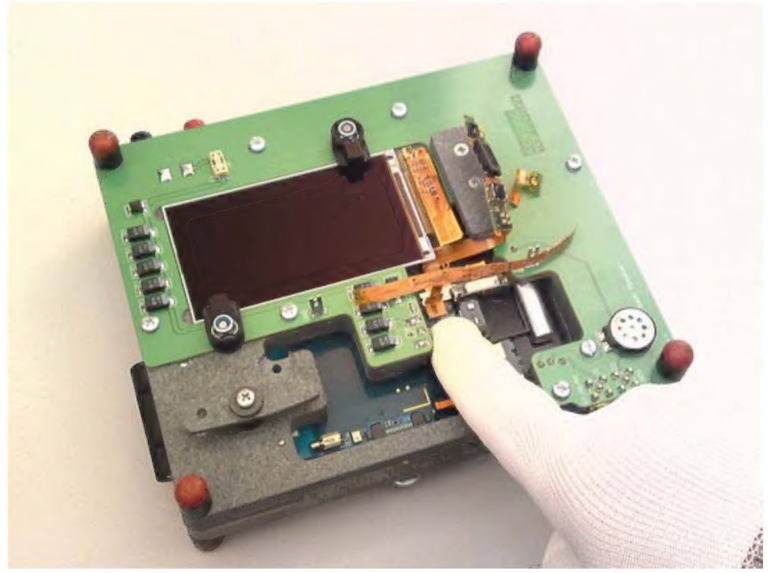
Connect the Xenon Flash Module and SIM Reader to the X2842 BtB connector on the PBA according to picture 9.

Picture 9



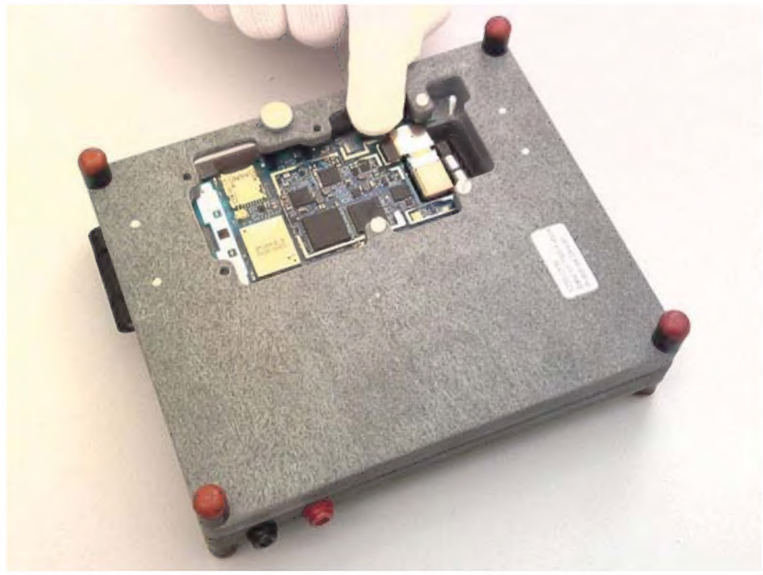
Connect the FPC Side Key to the X2902 BtB connector on the PBA according to picture 10.

Picture 10



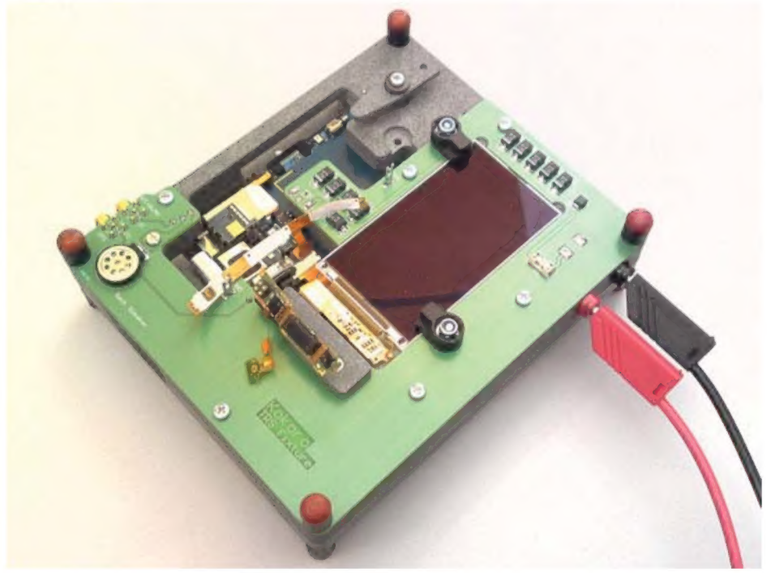
Connect Camera 12.1 MPixel to the X2820 BtB connector on the PBA according to picture 11.

Picture 11



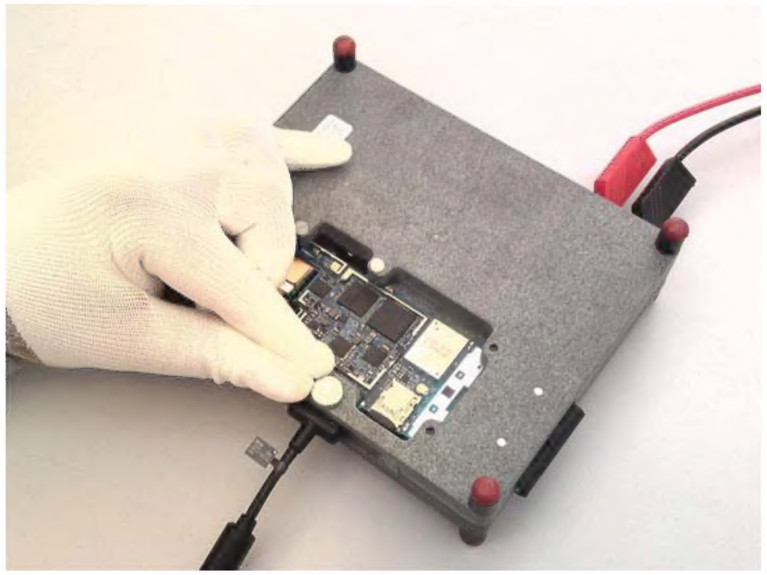
Connect Power Supply Channel 1 (VBATT) Black and Red Lab Plugs to the TRS Fixture according to picture 12.

Picture 12



Connect the USB Cable (DSU-65) into the X3000 System Connector and secure it by using the locking screw according to picture 13.

Picture 13



Connect the RF Cable Flexible to the BT/WLAN RF Connector on the TRS Fixture according to picture 14.

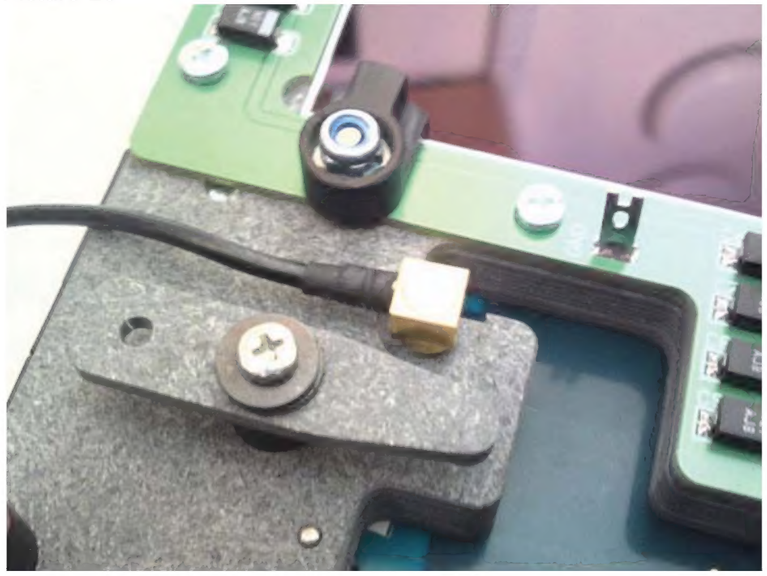
Picture 14

Connect the RF Cable Flexible to the GPS RF Connector on the TRS Fixture according to picture 15.

Picture 15

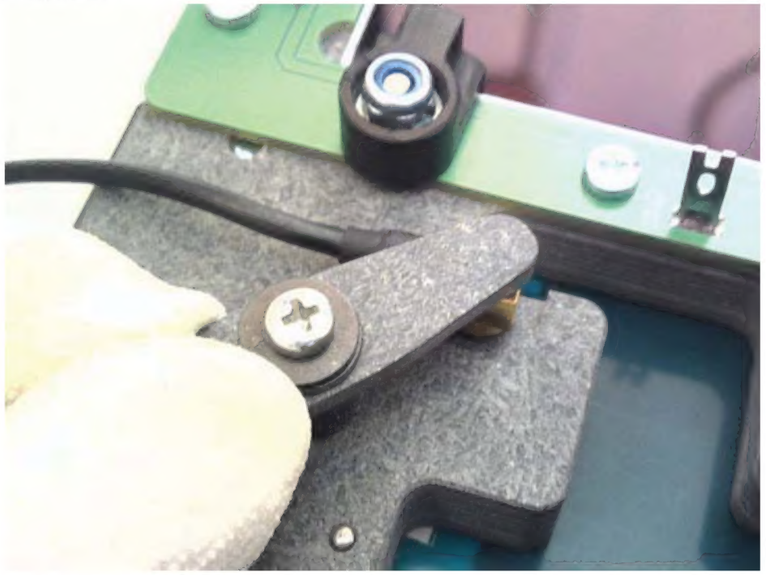
Connect the RF Cable Flexible with SMK RF Probe to the X1000 RF Switch according to picture 16.

Picture 16



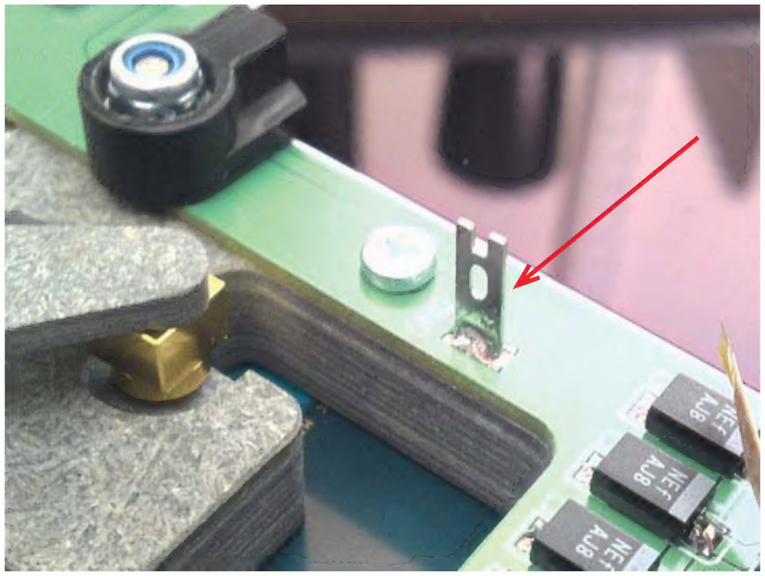
Secure the SMK RF Probe with the RF Probe locking device according to picture 17.

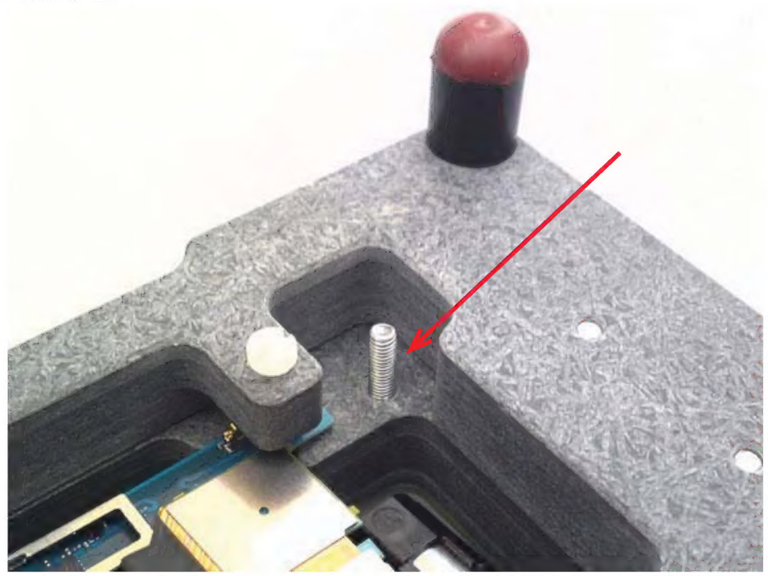
Picture 17



The PIN marked with the GND text on the Top-part of the TRS Fixture can be used as an MP TRS Fixture GND or grounding for the oscilloscope probe, see picture 18.

Picture 18



The PIN mounted inside TRS Fixture can be used as an MP TRS Fixture GND or groundir for the oscilloscope probe see picture 19.

Picture 19